

EVERYDAY READING PEARSON AND HUNT



BOOK THREE

Kurt Kreder



TAD DROPS THE ROBBER

EVERYDAY READING

BOOK THREE

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EVERYDAY READING BOOK THREE

E.P. 7

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PREFACE

RECENT investigations and scientific studies show that reading is a highly specialized process; that there are numerous types of reading, for the best development of which special training is necessary; and that fully ninety per cent of all reading is done silently.

The purpose of these readers is to train pupils to read well silently. They provide selections that will give specific training in the important types and uses of everyday reading, and likewise contain practical exercises that will be helpful in building fundamental reading skills. The following are some of the more important types of everyday reading and uses for which they are presented:

1. Selections for rapid reading for pleasure.
2. Selections for careful reading to get the exact thought.
3. Selections for reading to get the main idea.
4. Selections for reading for the purpose of preparing outlines.
5. Selections for reading to get the answers to specific questions.
6. Selections that will give training in rapid reading.
7. Selections that will afford training in the kind of reading necessary in the study of geography, history, science, and arithmetic.
8. Exercises that will train the eyes to see several words at a glance.
9. Exercises for increasing the vocabulary.

The limited amount of material that this series of readers contains should not be expected alone to develop good habits of reading and study. It ought, however, to point

the way to methods of procedure which, if applied in all other reading, will be permanently helpful.

Most of the current sets of readers emphasize literary material and neglect the other types that pupils need to know in order to meet the problems of actual experience. These books, therefore, are not designed to take the place of any basal readers that a school may be using, but rather to supplement such readers.

The primary purpose of this silent reader is not the development of literary appreciation. Emphasis has been given, rather, to informative material, since such material is especially well adapted to the testing of accuracy and speed of reading. A great variety of material is provided, some for rapid reading, some for careful and exact study, some for the selection of the main ideas, and some for topical analysis. In general the selections are easy, so that pupils may not be unduly handicapped by linguistic difficulties. Constant emphasis is given to the fact that the fundamental purpose of all reading is to get thought from the printed page.

The *Manual for Everyday Reading, Books One, Two, and Three*, gives such explicit and complete instructions for the use of all material that inexperienced teachers can get gratifying results. For the experienced teacher it offers workable devices to help the very poor pupils, and suggestions for obtaining variety in teaching procedure.

Careful directions are given the teacher which will enable her to measure the ability of each pupil in speed and comprehension. Numerous passages for testing are provided in the texts and explained in the manual by which the reading ability of each member of the class may be learned, and by which progress during the year may be measured.

There is great waste in mass instruction, for the same method may not be used effectively on widely different

pupils. The teacher is directed specifically how to divide a class into groups according to reading ability, and how to meet the special needs of each group.

In addition to the discussion of the general problems of reading, the manual contains three sections devoted to detailed suggestions for lesson plans. Every selection is explained, its type and its relation to other types made clear, and its teaching methods suggested.

The employment of *Book Three* of this series will be found to be generally adapted to the sixth grade work; but local conditions may be such that a variation of one grade either way is advisable.

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EVERYDAY READING

BOOK THREE

1. RESPECT FOR THE FLAG

Every good citizen will wish to know how to show proper courtesy on all occasions to the flag of his country.

On Flag Day, June 14th, 1923, a conference was held in Washington under the direction of The American Legion to agree upon the rules of flag etiquette. The rules adopted by this conference have been generally accepted as representing what is right in all uses of the flag. The following are the most important of these rules. Read them very carefully.

On pages 15, 16, you will find ten situations described by words or pictures showing uses of the flag. Study them carefully. Then take a sheet of paper and write *wrong* or *right* opposite the number referring to each of these situations. You will probably find it necessary to study these rules a second time before you can decide.

THREE are certain facts which, if understood generally, would indicate the proper method of displaying the flag. The matter becomes a simple one if it is kept in mind that the national flag represents the living country and is itself considered as a living thing. The union (the block of stars) of the flag is the honor point; the right arm (its own right) is the sword arm, and therefore the point of danger and hence the place of honor.

1. The flag should be displayed only from sunrise to sunset, or between such hours as may be designated by proper authority. It should be displayed on national and state holidays and on historic and special occasions. The

flag should always be hoisted briskly, but lowered slowly and with ceremony.

2. When carried in a procession with another flag or with several flags, the flag of the United States should be on the marching right — that is, the flag's own right; but when there is a line of other flags, the flag of the United States may be in front of the center of that line.

3. When displayed with another flag against a wall from crossed staffs, the flag of the United States should be on the right, the flag's own right; and its staff should be in front of the staff of the other flag.

4. When the flags of states or cities or the pennants of societies are flown on the same halyard with the flag of the United States, the national flag should always be at the peak. When flown from adjacent staffs, the flag of the United States should be hoisted first. No flag or pennant should be placed above or to the right of the flag of the United States.

5. When a number of flags other than national flags are grouped and displayed from staffs, the flag of the United States should be in the center or at the highest point of the group.

6. When flags of two or more nations are displayed, they should be flown from separate staffs of the same height, and the flags should be of approximately equal size. International usage forbids the display of the flag of one nation above that of another nation in time of peace.

7. When the flag of the United States is displayed in a manner other than by being flown from a staff, it should be displayed flat, whether indoors or out. When displayed either horizontally or vertically against a wall, the union should be uppermost and to the flag's own right; *i.e.* to the

observer's left. When displayed in a window, it should be displayed the same way; that is, with the union or blue field to the left of the observer in the street. When festoons, rosettes, or drapings of blue, white, and red are desired, bunting should be used, never the flag.

8. When displayed over the middle of the street, as between buildings, the flag of the United States should be suspended vertically with the union to the north in an east and west street or to the east in a north and south street.

9. When used on a speaker's platform, the flag should be displayed above and behind the speaker. It should never be used to cover the speaker's desk or to drape over the front of the platform. If flown from a staff, it should be on the speaker's right.

10. When flown at half-staff, the flag should be first hoisted to the peak and then lowered to the half-staff position; but before being lowered for the day, the flag should be raised again to the peak. On Memorial Day, May 30th, the flag should be displayed at half-staff from sunrise until noon and at full-staff from noon until sunset, for the nation lives and the flag is the symbol of the living nation.

11. During the ceremony of hoisting or lowering the flag or when the flag is passing in a parade or in a review, all persons present should face the flag, stand at attention and salute. Those present in uniform should render the proper military salute. When not in uniform, men should remove the headdress with the right hand and hold it at the left shoulder. Women should salute by placing the right hand over the heart. The salute to the flag in a moving column is rendered at the moment the flag passes.

When the national anthem is played, those present in uniform should salute at the first note, retaining this posi-

tion until the last note of the anthem. When not in uniform, men should remove the headdress and hold it as in the salute to the flag. Women should render the salute as to the flag. If the flag is displayed during the playing, all should face toward it. When there is no flag displayed, all should face toward the music.

CAUTIONS

1. Do not permit disrespect to be shown to the flag of the United States.
2. Do not place any other flag or pennant above or to the right of the flag of the United States.
3. Do not let the flag of the United States touch the ground or trail in water.
4. Do not place any object or emblem of any kind on or above the flag of the United States.
5. Do not use the flag as drapery in any form whatever. Use bunting of blue, white, and red.
6. Do not fasten the flag in such manner as will permit it to be easily torn.
7. Do not drape the flag over the hood, top, sides, or back of a vehicle, or of a railroad train, or boat. When the flag is displayed on a motor car, the staff should be affixed firmly to the chassis or clamped to the radiator cap.
8. Do not display the flag on a float in a parade except from a staff.
9. Do not use the flag as a covering for a ceiling.
10. Do not use the flag as a portion of a costume or of an athletic uniform. Do not embroider it upon cushions or handkerchiefs or print it upon paper napkins or boxes.
11. Do not put lettering of any kind upon the flag.

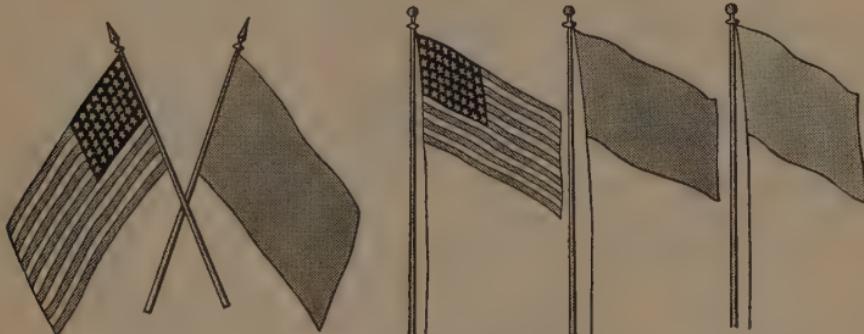
12. Do not use the flag in any form of advertising or fasten an advertising sign to a pole from which the flag of the United States is flying.

13. Do not display, use, or store the flag in such a manner as will permit it to be easily soiled or damaged.

—Adapted from *The Flag Code*, a report of the National Americanism Commission.¹

ARE THESE RIGHT OR WRONG?

1. At the dedication of a new flagstaff on the morning of Memorial Day, the flag was raised slowly to half-staff. Was this right or wrong?



2. Is this right or wrong?

3. Is this right or wrong?

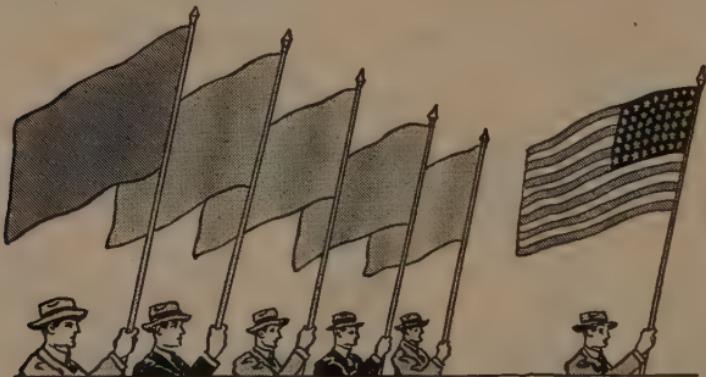


4. Are these salutes right or wrong?

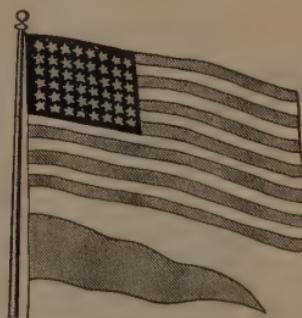
5. In an automobile parade, one of the cars showed the flag draped over the hood. Was this right or wrong?

¹ Reprinted by courtesy of The American Legion.

6. In a north and south street the flag was hung with its union to the east. Was this right or wrong?
7. When speaking at a school program, a girl appeared with the flag draped about her waist. Was this right or wrong?
8. Is this right or wrong?



9. At a school assembly, the principal's desk was covered with the flag. Was this right or wrong?
10. Is this right or wrong?



2. ROBERT SALLETTE

This is a selection that will give you practice in learning to read rapidly. Remember, however, that it is more important to get the facts than to read fast.

Wait for your teacher's directions before you begin.

THE Revolutionary War in Georgia developed some very romantic figures, which are known to us rather by tradition than by recorded history. First among them, on the side of the patriots, was Robert Sallette. Neither history nor tradition gives us the place of his birth or the date of his death; yet it is known that he played a more important part in the struggle in the colony than any other man who had no troops at his command. He seems to have slipped mysteriously on the scene at the beginning of the war. He was a roving character, fond of doing strange things his own way. But better than that, he was a hero and a wanderer combined in one person, fighting in his own way for the rights and liberties of the people. He fought bravely, even fiercely, to the end, and then, having nothing else to do, slipped away mysteriously.

Curious as we may be to know something of the personal history of Robert Sallette, it is not to be found in books. The French twist to his name makes it probable that he was a descendant of those unfortunate Acadians who, years before, had been stripped of their lands and possessions in Nova Scotia by the British, their houses and barns burned, and they themselves transported from their homes. They were scattered at various points along the American

coast. Some were landed at Philadelphia, and some were carried to Louisiana. Four hundred were sent to Georgia.

Another fact that leads to the belief that Robert Sallette was a descendant of the unfortunate Acadians was the ferocity with which he pursued the British and the Tories. The little that is told about him makes it certain that he never gave quarter to the enemies of his country.

His name was a terror to the Tories. One of them, a man of considerable means, offered a reward of one hundred guineas to any person who would bring him the head of Robert Sallette. The Tory had never seen Sallette, but his alarm was such that he offered a reward large enough to tempt some one to assassinate the daring partisan. When Sallette heard of the reward, he disguised himself as a farmer, and provided himself with a pumpkin, which he placed in a bag. With the bag swinging across his shoulder, he made his way to the house of the Tory. He was invited in, and he deposited the bag on the floor beside him, the pumpkin striking the boards with a thump.

"I have brought you the head of Robert Sallette," said he. "I hear that you have offered a reward of one hundred guineas for it."

"Where is it?" asked the Tory.

"I have it with me," replied Sallette, shaking the bag. "Count me out the money and take the head."

The Tory counted the money and placed it on the table.

"Now show me the head," said he.

Sallette removed his hat, tapped himself on the forehead, and said, "Here is the head of Robert Sallette!"

The Tory was so frightened that he jumped from the room. Sallette pocketed the money and departed.

3. CHOOSING THE RIGHT WORD

In our reading we find many words which need to be understood exactly to make the meaning of the sentence clear. Certain words differ in meaning from others only slightly; one of the aims of reading and study is the ability to understand these differences. Often the key to the entire thought of a sentence lies in a single word.

The sentences given below give you an opportunity to make a choice of words. Usually one of the words given is better than another. Read the sentences. Make your choice. Write it on a piece of paper after the number of the sentence, and be ready to explain why you would use it. A dictionary may help you.

1. It is easier to make (*a friend, an acquaintance*) than to make (*an acquaintance, a friend*).
2. He described the entire (*circumstance, incident*).
3. The child was too (*refined, delicate*) to live long.
4. The amount of money (*excelled, exceeded, surpassed*) our greatest hopes.
5. The train climbed the mountain (*gradually, imperceptibly*), but at last we were at the top.
6. Though his career was (*distinguished, honorable*), he was little known.
7. If our plan was to succeed at all, his help was (*necessary, indispensable*).
8. At last our stronger army (*prevailed upon, forced, persuaded*) the enemy to retreat in haste.
9. His story was (*uniform, alike, common*) every time he told it.
10. The queen wore a rich gown, which was her (*common-place, ordinary*) custom.

4. THE WASPS

When Mr. and Mrs. Jones and their son Bobby arrived at their summer cottage, they found a large wasps' nest under the eaves. Bobby was full of questions about the wasps, many of which his father could not answer. Here are some of Bobby's questions:

1. What is the nest made of?
2. What food do the wasps eat?
3. Where do they spend the winter?
4. Shall we try to kill them, or let them alone?

They decided to consult an encyclopedia at the village library, and this is the article they found. Find the answers to Bobby's questions. Are there any other questions about wasps that the article suggests?

MOST people think of wasps simply as annoying creatures with bad tempers and sharp stings, and until quite recently no one ever bothered about them much except when stung. The unpleasant habit of stinging, together with the fact that wasps sometimes feed on ripe fruit, was about the extent of our popular knowledge of these insects. Even the encyclopedias, after they had given a tedious description of the wasp's body and a few of its general habits, usually ended their articles with advice on the best way of killing wasps.

Fortunately, in recent years the true student has been going into gardens and fields and watching the insect at its daily work and trying to get what might be called the insect's point of view. This has been a great benefit to the much misunderstood wasps, which are not only among the wisest of all insects, but also in many cases true friends of men.

Belonging to the same order of insects as the bees and ants, the wasps themselves may be divided into two groups — the social wasps and the solitary wasps. The former, including the hornets and yellow jackets, live very much like bees, with queens and males and workers. They are the original paper-makers, chewing up leaves or wood fiber into pulp, out of which they build their nests, sometimes in holes dug in the ground, sometimes hanging from the branch of a tree, or sometimes stuck beneath the rafters of an old house or barn. The large pear-shaped nests of the white-faced hornet are familiar to all country dwellers, and most of the evil reports we hear about wasps come from misguided persons who insist on poking down these nests with a stick. Wasps won't sting unless you hurt or frighten them; bear this in mind if you want to study these interesting creatures.

Some of the social wasps of tropical countries build huge nests. One species in Ceylon often has homes six feet long. Another in South America mixes earth with the paper pulp and with the mixture makes walls as solid as stone.

Unlike the hives of bees, the wasp communities last only one summer. All of the members die at the approach of cold weather, except a few queens, who sleep through the winter and in the spring lay the foundation for new nests and new generations. Each queen builds a few comb cells, made, like the walls of the nest, of paper. In each cell she lays an egg, which hatches in about eight days. She then feeds the legless grubs until in about fourteen days they become pupæ, and ten days later full-grown workers. These immediately relieve the queen of the task of enlarging the nest and providing for the new batches of young. As food becomes more abundant, the queen produces queen

eggs and male eggs, and when food is exceedingly plentiful the workers themselves often develop the faculty for laying eggs.

With the exception of certain tropical honey wasps, all wasps feed their young on animal food, consisting usually of other insects.

While the social wasps exhibit admirable community instincts, it is among the solitary wasps that the most amazing habits and the highest intelligence are found. There are hundreds of species, some as large as hornets, some less than a quarter of an inch long; and their colors vary from dull black and brown to brilliant reds and yellows and blues. Almost every species has some strange habit peculiar to itself, but it is in building nurseries for its young and in hunting and overcoming its prey that the wasp shows its most amazing and varied skill.

The mother, among solitary wasps, is confronted with the fact that her children are very greedy and will only be satisfied with the flesh of living or recently killed prey. She must, therefore, not only build a safe nest in which to lay each egg, but must stock that nest with fresh food on which the wasppling may begin feeding the moment it leaves the egg. This task is more difficult than might appear, for each species of young wasp demands its own particular kind of food. One eats only a certain kind of fly; another requires a carefully chosen caterpillar; a third will have only spiders; others dine exclusively on special beetles, grasshoppers, crickets, cockroaches, ants — but the list is too long to be given entire.

Let us follow the caterpillar wasp on a hunting expedition. She has built her nest in the ground, hidden perhaps under the leaf of some plant. It consists of a tunnel an inch or

two long, leading down at a sharp angle to a small pocket. Before departing for the chase, she carefully closes the opening with a lump of earth and smooths it over so the keenest eye can hardly find it; then, after a careful survey of the neighborhood, as if to fix the spot in her memory, she is off on her quest for provisions.

It may take a few minutes or several hours, but sooner or later she finds her game — a green caterpillar resting



WASP CAPTURING CATERPILLAR

on a leaf. She attacks at once, and her strong jaws soon close over its back near the head. Standing high on her long legs, the wasp then lifts the front of the caterpillar, curves the end of her long abdomen underneath, and thrusts in her sting between two segments of her victim's body. At once the caterpillar becomes limp and helpless. The sting is withdrawn and plunged carefully between other segments.

Now she picks up her prey, and, half running and half flying, makes her way back to the nest. She digs out the

opening, drags the caterpillar inside, lays an egg on one of its middle segments, comes out, closes up the hole carefully, and is off hunting again.

But here is the strange thing: *the caterpillar is not dead.* With the skill of a trained surgeon, the wasp has thrust her poisoned lancet into the nerve centers which control the creature's motion, leaving it alive but paralyzed. In this cruel but necessary manner, she has made sure that the food supply for her young will not decay or dry up before the egg hatches two or three days later.

How the wasp knows where those delicate nerve centers are situated is one of nature's mysteries. Comparatively few people realize that the motor nerves of insects and spiders are situated on the under side, instead of along a spinal column at the back, as in the higher creatures. Yet the solitary wasp seems to be born with that knowledge. There is a species of beetle-hunting wasp of Europe, described by the great French naturalist, Henri Fabre, which is compelled to press down upon the body of its victims in order to open the one joint in their armor through which the sting, with unerring accuracy, can reach its mark.

The tarantula-killer of the American Southwest by clever tactics induces her dangerous prey to rise in defense on its back pairs of legs, exposing the vulnerable spot on the big spider's breast. A quick thrust of the wasp's sting disables the monster, and it has been known to remain alive but motionless for more than five weeks after this operation.

The quantity of food stored in each nest varies greatly. A single larva of a certain fly-catching wasp has been known to eat eighty-two flies in eight days. The mother wasp, in this case, lives in the nest herself and builds side tunnels for

nurseries and storehouses, feeding and watching over her young as they grow up.

The digger wasps do not show so great a skill in home building as the carpenter wasps and the mason wasps. The former bore holes in trees or old posts, or clear out the pith from the stems of certain bushes to make room for their nursery cells. The mason wasps, which include the common "mud-daubers," usually construct their cradles of mortar and small stones on walls or sun-heated rocks. The greatest skill and nicety is used in the selection of material and the shaping of the structure.

Yet it is among the digger wasps that we find what is perhaps the only case of the use of tools by lower animals. This amazing habit is described in the Peckhams' interesting book, *Wasps, Social and Solitary*. They tell how they saw a wasp repeatedly take up in her jaws a small pebble with which she hammered down the earth over her nest, dropping it to pile on more earth, and seizing it again to pound. Other observers have recorded similar experiences.

"So far as I know," says the great nature student, John Burroughs, "there is no other animal in America that makes any mechanical use of an object or substance foreign to its own body in this way."

Although some wasps attack and destroy large numbers of domestic bees and a few species injure trees by gnawing them, the wasp tribe as a whole do mankind a tremendous service by destroying numbers of harmful bugs, beetles, flies, and caterpillars. Before killing a wasp, therefore, it is well to try to find out whether it is friend or foe.

— From *Compton's Pictured Encyclopedia*.¹

¹ Reprinted by courtesy of F. E. Compton and Company.

5. KEEPING FIT

Simple, natural exercises are excellent for developing and preserving physical vigor, but they alone are not sufficient. Other things must not be overlooked; such as, the choice of proper outdoor recreation, a wise selection of food, and an intelligent mixture of work and play.

The exercises given below and elsewhere in this book should be performed in the classroom. Read the directions very carefully and study the pictures. Choose a pupil to go to the front of the room and go through the movements, the rest of the class criticizing and referring to the printed directions in case of disagreement. After several individuals have tried the movements in this way, a leader may be chosen to direct the entire class in the exercises.

STANDING

The standing exercise (Fig. 1) is given to help secure a good standing posture. The position should be easy and natural.

Stand with the feet parallel to each other and six to eight inches apart. Place one foot (either one) three to four inches in front of the other. Have your weight on both feet, but placed chiefly on their outer edges. Keep the weight off the heels. This position of the feet produces balance, pivot, and control. Push the trunk upward and lift the chest upward. Do not bend backward. Retain a feeling of relaxation in the shoulders, but secure a sensation of stretching and lengthening of the body without contracting the muscles.

STRETCHING

This is a natural movement that straightens the spine and lifts the chest.

On count *One* push the arms easily upward and rise on the toes as far as possible. Avoid an angular movement of the arms. Do not swing them up; push them up. Reach



FIG. 1

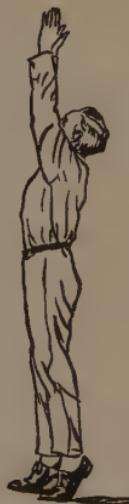


FIG. 2

up as far as possible as if trying to get an object from a high place (Fig. 2).

On count *Two* let the arms sink and the heels touch the floor, but retain as long as possible the sensation of stretching (Fig. 1). Do not let the body droop.

In the beginning, repeat the movements two or three times, but after sufficient practice you may repeat them ten times.

— Adapted from *Personal Hygiene Applied*, by Jesse Feiring Williams.¹

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6. USING HIS HEAD

Perhaps you have been lost, but not as this young man was. Yet both of you saved yourselves by using your wits. You will wish to read the story of this boy's exciting experience rapidly to find just how he saved himself.

IT was the beginning of the summer vacation. For the first time Fred Bixby was at work away from home. Through the help of a neighbor he had got a place for the summer at Hampstead in the meat department of the Wholesale Grocery Company.

The wholesale meat business may seem dull work, but Fred found it most interesting. In large refrigerator cars the western meats came to the railway siding behind the store. From the cars an overhead carrying-mechanism took their contents into one or the other of two great refrigerators, large enough together to hold several carloads.

One refrigerator contained the regular supplies, which were drawn from constantly to meet the needs of the surrounding country. The other was known as the reserve refrigerator. It was never opened except to receive new supplies or to meet some unusual demand of the trade. Fred was interested to find that the big refrigerators used no ice at all, a refrigerating machine keeping the temperature close to the freezing point.

One Monday afternoon, with his record books in hand, Fred stood under the electric light in the center of the reserve refrigerator, checking off the pieces of meat that were

being brought in and taken out. When the work was done, he handed his notebook to the chief accountant, who happened to be passing; and then, remembering that he had left the light burning in the refrigerator, he opened the door, walked to the light, and snapped it off.

There should have been plenty of light from the open door behind him, but he found himself in darkness. "Guess some one must have shut the door," he thought. "I'll turn on the light again."

Have you ever gone into a dark room and tried to find an electric light suspended from the ceiling? Even though you know within a few feet where it is, you find it annoyingly elusive. Fred did not know within fifteen feet where the light hung, and he spent five minutes or more in trying to reach it.

Then he decided that, since the door was larger than the electric bulb, he had better hunt for the door. But, as he quickly realized, he was completely turned round; he did not know in which direction to go to find the door.

Walking to the nearest wall, he began to feel his way round the room. But how should he know the door when he came to it? Like all refrigerator doors, it was thick and set flush with the wall. The only way he could be sure to know it when he reached it was to press steadily against the wall as he walked along, so that he would push the door open when he came to it. He walked twice round the room and pressed the wall all the time, but no door flew open. Had whoever shut it also thrown the bolt?

He shouted and shouted again. Then he remembered that the thick walls of the refrigerator, lined with many layers of felt, were sound proof. He grew more and more alarmed, but fortunately what he had heard an old hunter

say about being lost in the woods popped into his mind: "Don't get excited. Don't rush round wildly and aimlessly. Sit down and think."

Fred sat down on a case of goods and thought. No one would open the refrigerator again for several days. "And no one would think anything of it if I don't appear at the boarding house to-night," thought Fred, "and if I don't appear here at the store in the morning they will only think I'm sick or something. I wonder how long a person can live in a place like this. I'm chilled to the bone already. Anyway, it would at least look more comfortable if I could find that electric light and turn it on. Trying to find it will keep me warm for a while."

Jumping from the box, he began running here and there and waving his arms over his head, but he did not find the hanging bulb, nor did he get warm. He merely grew tired. Finally, he set about the search methodically. He knew that the fixture hung in the very center of the refrigerator. So he paced along one side of the room and found that it was forty steps long. He paced another side and found that it was thirty-six steps long. Consequently, if he walked back eighteen steps along the side he had paced last and then twenty steps at right angles to the wall, he would be in the center of the room. He had stumbled over a small box. Taking it in his hands, he walked back the eighteen paces along the wall, then the twenty paces straight toward the center of the room, and stopped. He put the box on the floor, stepped on it and felt about over his head for the bulb. In less than a minute he had found it.

As he snapped the switch, there flashed into his mind a possible method of signaling to the outer world. But with a pang of regret he realized that it was too late to attract

any one's attention that night. Every one, he knew, had left the place long ago, and his plan could work only when the men were working.

He made himself as comfortable as he could and waited. Every few minutes he got up and ran about and slapped his chest to drive away the chill that seemed to penetrate to his very bones when he did not exercise. He knew that in that atmosphere he must not go to sleep. He counted the sides of meat hung along the racks; he counted the number of boards in the opposite wall; he counted the flies on the ceiling.

It struck him suddenly that the flies were all on the ceiling. He wondered why none were on the walls. Why, of course, warm air rose; it was less chilly near the ceiling. Setting several wooden cases one on another, he built a tower and climbed to the top. It was a little warmer perhaps; but there could be no great difference in that cold place. He still had to exercise; he still had to count.

It was a long night, but finally six o'clock came, when he knew that the meat department would be especially busy, for that was the hour when the retailers called for their morning supplies.

Getting down from his perch on top of the packing cases, he went to the electric light, took out his jackknife and scraped the insulation from the two wires that led to it. Then he carefully held the blade of the knife so that it connected one bare wire with the other. There was a flash of fire, and the light went out. Fred knew that all electrical circuits are guarded by fuses that melt or burn out whenever there is a short circuit or when for any reason too much current for the safety of the wires is passing. By burning out, a fuse cuts off the current and puts out all the lights

on the circuit. The knife blade had short-circuited the current and burned out the fuse.

All work in the other refrigerator and in the salesroom would have to stop, for the lights were all on that circuit and would go out. Then the men would put in a new fuse and the lights would burn again. Fred waited.

In a few minutes, the light in the refrigerator where Fred was again illuminated the room, and he knew that the men had put in the new fuse. He waited five minutes and then again connected the wires with his knife blade.

When the lights had gone out for the fourth time, the department manager became disgusted and sent for an electrician. He put in a heavy fuse, but it promptly blew out like the others. Then he began to examine the wiring. After looking everywhere else, he said that the short circuit must be in the reserve refrigerator.

As they opened the door, Fred staggered out into the warm room. He thanked his stars that he knew at least a little about electricity.

— JOSEPH THUM in *The Youth's Companion*.¹

WORD STUDY:

fuse

illuminate

short-circuit

¹ Reprinted by permission.

7. THE DREAD HOUSE FLY

Do you know that the common house fly is your deadly enemy? If you do not, this article will prove it.

If you wish to get the full meaning of a selection, you will find it helpful to make an outline. This is not always easy, as you have to decide which are the main topics and which the subtopics. The main topics in this case are four:

- I. Our experiences with flies.
- II. Breeding places of flies.
- III. Life history of the fly.
- IV. How to fight flies.

Under the second, third, and fourth there are subtopics.

After you have read the selection, copy these main headings on a paper and fill in the subtopics. You may need to refer to the text frequently.

MOTHER had a summer kitchen about twenty feet from the house, in which she did the cooking when the weather was warm, so that the house would be cool. The house, except the summer kitchen, was all screened tight. In that kitchen I gained my first dislike for flies. They gathered in clouds and swarms like the flies of Egypt. With all mother's wisdom about wild things, she either did not know where they came from, or did not know how to prevent them from coming. We used to poison them, fix up fly-traps to kill them, fumigate the house with red pepper, have regular fly drives every morning before breakfast, and still they were so numerous that they came into the dining room in swarms every time the door was opened. As for the kitchen, there was no use in trying to keep them out.

Now the strange thing about it was that we did not know that we were keeping a great fly hatchery within a hundred and fifty yards of the house. On the other side of the house, at a distance of perhaps two hundred yards, was a second great nursery. I sometimes think the flies must have thought we loved them very much indeed, to keep two such wonderfully well prepared places for them to raise their young. Of course, we saw their young every time we went where they were, but none of us knew what they were. I never have been able to understand how two such observing people as my father and mother could have allowed these breeding places to exist for years and never have known it.

Now you have probably guessed where these places were. One was the horse barn and the other the cattle shed. The fact that fifteen or twenty young horses and colts stood under this cattle shed in the hot part of the day all summer long only made matters worse. We thought we were good farmers. We cleaned the horse stalls at least once every week, and put the manure on a great pile in the barn lot, and every spring and fall we spread it on the land. More than this we cleaned out our cattle shed once every year.

It was often my job to clean out the stables, even when I was only six or seven years old. When this had not been done for a week, I knew perfectly well that the stables would be all a-wiggle with maggots. I was never once suspicious that these millions of little filth-eating, wriggling maggots were young flies. Often in the spring mother would say, "I hope this will not be a fly year," and when they began to come in countless numbers, she would wonder where they all came from.

I well remember that during the year when I was eleven

both of my brothers went from home to work for themselves. That summer father was not very well, and we did not try to farm much. Our cattle and horses were therefore kept in a pasture a half mile from the house. We kept only one team of horses to do the work, and they were in the pasture much of the time. Mother at last got her wish. That year was not a fly year. We could not understand it at all, for the neighbors had just as many flies as usual.

I have told this story because I want you to know just what sort of fellow this filthy, disease-carrying, pestiferous house fly is. Let me tell you his history in detail. A female fly goes to some mass of filth and lays from one to two hundred eggs. If she finds a horse stable, she likes to lay her eggs there. If she can not find one, her second choice is either a cow barn, a pile of refuse in the street, or a garbage can. In case she can not find any of these places, she deposits her eggs on some decaying vegetable matter. In eighteen hours, more or less, according to how warm it is, these eggs hatch into the larvæ called maggots. Each maggot eats from five to seven days, having in that time shed its skin three times. It now becomes a pupa and rests quietly for five or six days, when it is hatched into a fly.

You ask what becomes of the mother fly, after she has crawled about in this filth, laying eggs? As she lays only four or five in one cluster, she has to creep about a great deal while laying. Then she feels hungry and goes to a house where she crawls over our food without first cleaning her feet. If she can not get any of our food, she goes to the baby, creeps over its mouth, nose, or eyes while it is sleeping, or she may do the same thing to grown people. After feeding in the house for a time, she desires a change of food, and goes to a sewer, or to some dead animal, and

takes her fill, making sure to come back to the house in time to take supper with the family. She goes to bed on the ceiling and by morning is ready to lay another hundred eggs in filth. Usually she takes more than a day between the laying of eggs, but as she will lay four or more times in her short life, it is not hard to see where so many flies come from. A single fly that goes through a winter may have ten generations of children in one summer, and they may number millions. The last generation may lie in the manure bed all winter as pupæ, and hatch with the first warm days of spring, or the fly itself may get into some warm place and remain there all winter, coming out in the spring.

It is well known that the house fly carries more disease to man than any other living creature. It is the cause of death to thousands every year. The question is, "What can we do about it?" First, we can make fly traps and catch the flies before they get into our houses. Then we can see that all garbage is kept well cleaned up, and that other breeding places are cared for. If manure piles are kept covered with finely ground limestone, flies will not lay their eggs there. This can be done every time the stables are cleaned out. Flies will then grow scarce. If you cannot get the finely ground lime rock, air-slacked lime will do fairly well.

Any one can get a swatter at the store, or make one, and use it every day. It is pretty easy to kill all flies in a well-screened house in a few minutes. Here is another way in which you can play at war and feel sure that if you do not kill your enemy, he will sooner or later kill you or some of your friends.

— Adapted from *Knowing Insects Through Stories*, by Floyd Bralliar.¹

¹ Used through courtesy of Funk and Wagnalls Company, publishers.

8. AUNT NANCY HART

It is important to learn to read rapidly, but it is more important to learn to read well. A pupil, however, who can read both rapidly and well has the most important tool that the school can give.

Wait for your teacher's suggestions before you begin to read.

THERE lived in Georgia, during the Revolutionary struggle, the most remarkable woman in some respects that the country has produced. To find her match, we shall have to go to the fables that are told about the Amazons. There are other heroines to whom history has paid more attention, and whose deeds have been celebrated in song and story; but not one of them was more devoted to the high cause of freedom, or more courageous, or depended less on aid from others, than Aunt Nancy Hart.

She was nearly six feet high, and very muscular — the result of hard work. She had red hair, and it is said that she was cross-eyed, but this has been denied on good authority. It matters little. Her eyes were keen enough to pierce through all Tory disguises, and that was enough for her. It is certain that her courage and confidence kept alive the spark of liberty in hearts where it would otherwise have been smothered, and was largely responsible for kindling it into flame that finally swept the British out of that section, and subdued the Tories. When the Whigs and patriots who had been her neighbors were compelled to flee before the murderous Tories, she refused to go with them, but stood her ground and never ceased to speak her opinions boldly. Nothing but the wholesome dread with which she had inspired them prevented the Tories from murdering her and her children. She remained at home,

and for a long and dismal period was unprotected save by her own remarkable courage.

At that period the houses were built of logs, and the chimneys were built of sticks plastered with clay. They were called "stack chimneys." One evening Aunt Nancy and her children were sitting around the fire, on which a pot of soap was boiling. Now, a pot of soap must be constantly stirred, and for this the strong, muscular arms of Aunt Nancy were peculiarly fitted. So she stirred the soap, and, as she stirred, told the youngsters the latest news of the war. Presently one of her children chanced to discover some one peeping through the crack of the chimney, eavesdropping. By a gesture or a nod of the head Aunt Nancy was informed of what was going on. She smiled and grew more spirited in her talk, rattling away and laughing as she gave exaggerated accounts of the recent defeats of the Tories. As she talked, she stirred the bubbling soap, and kept her keen eyes on the crack where the eavesdropper had been seen. Suddenly she dashed a ladleful of boiling soap through the crack, full into the face of the intruder. It was so quickly and deftly done, that the eavesdropper had no time to dodge the scalding stuff. He received the full benefit of it. Blinded and half crazed by the pain, he howled and screamed at a tremendous rate. Aunt Nancy went out, bound him fast, and held him prisoner. The probability is that the next day she tucked up her petticoats, shouldered her gun, and compelled the unlucky Tory to ford the river ahead of her; and that, once on the other side, she marched her prisoner into the hands of the American forces. This is but one of her deeds that struck terror into the hearts of her enemies.

— Adapted from *Stories of Georgia*, by Joel Chandler Harris.

9. GETTING THE MEANING OF WORDS

Often we come to a word which we do not wholly understand. Sometimes it is best to stop and find its exact meaning, but often we can guess the meaning from the other words and go on.

In this exercise certain words are left out. Read it through until the general meaning is clear, and then go back and choose for each number the word which best fits the meaning. Write opposite the proper number, on paper, each word you have chosen.

MR. ARROW, first of all, turned out even (1) than the captain had feared. He had no command among the men, and people did what they (2) with him. But that was by no means the worst of it; for after a day or two at sea he began to appear on deck with hazy eye, red cheeks, stuttering tongue, and other (3) of drunkenness. Time after time he was ordered below in (4). Sometimes he fell and cut himself; sometimes he lay all day long in his little bunk at one side of the companion; sometimes for a day or two he would be almost (5) and attend to his work.

In the meantime, we could never make out where he got the drink. That was the ship's mystery. Watch him as we pleased, we could do nothing to (6) it; and when we asked him, he would laugh, if he were drunk, and if he were sober, deny that he ever tasted anything but water.

He was not only (7) as an officer, and a bad (8) among the men, but it was plain that at this rate he must soon kill himself outright; so nobody was much surprised, nor very sorry, when one dark night, with a head sea, he (9) entirely and was seen no more.

“Overboard!” said the captain. “Well, gentlemen, that saves the (10) of putting him in irons.”

— Adapted from *Treasure Island*, by Robert Louis Stevenson.

10. MAKING AN AMERICAN

The little girl of this story was born in Russia, but she became an enthusiastic American citizen. She is the author of the well-known book, *The Promised Land*.

Read this story as quickly as you can to find out what it was in America that helped her most to become a good American.

A LITTLE girl with bright starry eyes stood at the rail of a great ocean steamer one glorious May morning and watched the shores of the promised land, America, creep nearer and nearer. She was five thousand miles from her old home in far-away Russia, but she was not afraid. Her mother, brother, and two sisters were with her on the ship, and on shore waited her father who had left home three years before to try his fortunes in the New World. And then was not this America, the wonderful land where no one was looked down on because he worked and where even the children of the poor could go to school?

Can you wonder that this little girl was excited when, after six weeks of travel through strange cities and across the ocean, she at last arrived at her new home? And what a strange home it was! After they had got safely by the immigration officers and joined their father, he took them in a rickety cab to the place he had rented in the slums of Boston. On the way he told them not to lean out of the windows and not to point at things, for if they did, people would know that they were "greenhorns" and not Americans.

To be American was the one desire of the whole family. And one of the first things to do to realize this ambition was to take American names. Our little girl had been christened Maryashe at home and that would do very well shortened to Mary. This was a bitter disappointment, for she did so want a strange-sounding American name like the others. For instance, her elder sister, Fetchke came forth as Frieda, and baby Deborah as Dora. But there was one consolation. Here she could use her surname all the time and not on state occasions alone. And so she felt very important to answer to such a dignified title as Mary Antin.

With their old names, the family exchanged their queer old homemade European dresses, which pointed them out as "greenhorns" to the children on the streets, for real American machine-made garments bought in a dazzlingly beautiful palace called a department store.

The most wonderful thing happened on Mary's second day in her new home. A little girl from across the alley came and offered to take the children to school. Then it really was true that in America any child could get an education! There was no application to be made, no examinations to pass before you could enter, no fees to pay. But as school was almost over for the year, their father decided that they had better wait until September to start. When September came, their father took them himself. And Mary was no more eager to enter school than her father was to have her secure an education. In his excitement that morning he walked so fast that the children had to run to keep up with him. Finally they stood around the teacher's desk, and Mary's father explained in a few broken words his hopes for his children.

Although Mary was twelve years old, she had to start in the first grade, for she knew no English and had never been to school before. But she was so anxious to learn that she advanced rapidly. Only one thing bothered her. That was the little word *the*. She had a hard struggle not to say "zee." But she made her tongue stop buzzing when it said *the*, and within a week she was advanced to the second grade. Oh, how proud Mary was four months later when her teacher showed her a newspaper with her name printed in it. For the teacher had sent something Mary wrote to a paper that had printed it. And even a little girl born in America might have been proud to write so well.

All this time Mary was being made into an American. Dingy little Chelsea, where her family now lived, was beautiful to her. The sight of the letter carrier or the fire engine made her happy and proud, for they were part of her America. But she was happiest when in her second year in school — she was now in the sixth grade — the class began to study the life of Washington. The reader, the arithmetic, the song book, that had been so fascinating before, suddenly became dull books after she found the story of this great man. When she read the story of the cherry tree and of how the boy Washington would not tell a lie to save himself from punishment, she resolved that she would follow his example. But even if she never, never told a lie she could not compare with George Washington. He was brave, and she was afraid to go out when the snow-balls whizzed. And she could never be the first president of the United States.

There was one cheering thought in all this. Though she never could be as great as George Washington, she was,

as one of her books said, a "fellow-citizen." Her father explained to her how he had become a citizen by naturalization and how, because she was his little daughter, she was also a citizen. This was rather a sobering thought. "If I am a fellow-citizen," she thought, "then I must act as a fellow-citizen should."

When her class stood up to sing *America*, Mary shouted with all her might, and she meant every word of it when she sang :

I love thy rocks and rills,
Thy woods and templed hills!

When they began to prepare a program for Washington's birthday, Mary decided to write a poem. It was hard work, for poetry, you know, is not always easy to write, and Mary frequently had to pick the words she wanted out of the dictionary. Perhaps it wasn't very good poetry, for Mary herself long afterward laughed at it. But when you think that a little girl thirteen years old, who had not been in school two years, wrote it, and that it expressed her love for her new home and for its history, it is wonderful.

Here are two of the stanzas of it :

He whose courage, will, amazing bravery,
Did free his land from a despot's rule,
From man's greatest evil, almost slavery,
And all that's taught in tyranny's school,
Who gave his land its liberty,
Who was he?

'Twas he who e'er will be our pride,
Immortal Washington,
Who always did in truth confide.
We hail our Washington!

Mary read her poem in her own room at school and then was sent to other rooms to read it. Every one thought it

wonderful that a little girl who had been an American for so short a time could do so well. Somebody suggested that it should be printed; so Mary, without saying a word to her father and mother, took it to a newspaper office. At the first office no one would pay any attention to her. But at the second she had better luck. The editor promised to print it and send her a copy of the paper with it in. He asked her many questions about herself. By and by the paper came.

You can imagine how happy Mary was. And her family were as proud of her as they could be. Her father bought all the papers he could find and gave them to friends. They were all sure that some day Mary would be great. Because of this belief, they kept Mary in school.

This was not easy because the family were very poor. Sometimes they had nothing in the house to eat. They moved from one tenement to another in search of a cheaper place, and many times angry landlords threatened to turn them into the street because they could not pay the rent.

Mary helped all she could on Saturdays and in the evenings, but she could not do much, for she was not very strong. But while she was going to school, or reading in the library, she was really getting ready to help her family. And finally the day came when she not only could help them live better but also by her book, *The Promised Land*, could help other new Americans by telling the story of how she was made into an American.

— From *Compton's Pictured Encyclopedia*.¹

¹ Reprinted by courtesy of F. E. Compton and Company.

11. A GOOD GAME TO PLAY

Here is a game that old and young have played for a long time. Read the rules. Talk them over until you understand them. Then try the game on the playground. You need to be a good sport to play it.

THIS game is played out-of-doors or in the gymnasium.

The game may be played by any number of players. Be certain the ball is no harder than a tennis ball. All those taking part place their hats in a row. A throwing line is scratched on the ground or drawn with lime fifteen or twenty feet from the hats. A soft ball and a supply of pebbles or small sticks are provided. These pebbles or sticks are called "babies."

One player is then chosen to throw the ball. He takes his place behind the throwing line. The rest take their places behind their hats. The boy who is "it" behind the line then throws or rolls the ball at the hats. If he misses and the ball does not stay in any hat, a "baby" is placed in his hat. When the ball lands in a hat and stays, all the other players guarding their hats run away and the owner of the hat picks up the ball and throws it at the other players as they run. If he hits another player, a "baby" is given to that player, who becomes the thrower. While the other players return to their hats. If he does not hit any one, he gets the "baby" and becomes the thrower himself.

As soon as any one gets five "babies," he is "put through the mill." A line is drawn on the ground and he steps as

far as he can in five or more paces as agreed by the players. There he must stand with his back to the players, who each have one throw at him with the soft ball.

Sometimes the hats are not used, but small holes are dug in the ground. This is better, as it will keep you from soiling your hats. When played this way, the game is called "Roley-Poley."

QUESTIONS

Answer the following questions by *yes* or *no*. Write each answer after the number of the question on a sheet of paper. Consult the directions if you are in doubt.

1. Can the game be played in the house?
2. May holes in the ground be used instead of hats?
3. Should all run away as soon as the ball is rolled toward the hats?
4. May a player pick up the ball when it lands in another's hat?
5. Is a "baby" given when a thrower does not hit the player he aims at?
6. Does the player who is hit get a "baby"?
7. Does a thrower get a "baby" when he misses the one being "put through the mill"?
8. Does a thrower get a "baby" if he misses the hats?
9. May the one "put through the mill" step as far as he can at each pace?
10. Does the selection say that the "babies" should be taken out of the hats after a player is "put through the mill"?

12. THE SKIPPER OF THE *J. F.*

Sometimes we read very carefully, as, for example, when we wish to get all the information from an important article. At other times, when we are reading an exciting story, we are not so particular, but read fast to find out what happens next.

This is a good story that is full of adventure. You will wish to read it rapidly to find out how it ends.

TAD WELDON was chopping wood at the kitchen door of a little farmhouse that stood close to the shore of Lake Champlain. Although the thermometer showed six degrees below zero, Tad, who was as rugged as his own Vermont hills, had taken off his coat.

As he drove the ax into the stubborn logs, he talked to himself in a queer, jerky fashion.

“Mighty slow way to cut wood! Now, if I had that portable sawmill that’s — that’s advertised secondhand for — four hundred dollars — I could clean up our wood lot in the time — time it takes me to chop enough for our own use.”

He paused at the end of a powerful stroke and said, “I know I could make a go of it. We’ve got twenty acres of fine oak and beech. Father used to say that it would cut pretty close to a hundred cords to the acre. With coal at fourteen dollars a ton there’ll be a lot of folks looking for good hard wood in stove and furnace lengths. Phil and I could cut a lot of it between now and spring. Then during the summer we could work it up into fireplace and furnace

size and next fall hire a barge and take half a dozen loads up to Whitehall and through the canal to Albany."

A sharp gust of stinging cold wind reminded him that it was no time to stand idly dreaming, and he turned again to his work. "I can't see where that four hundred dollars is coming from," he said to himself, "but just the same I'll buy that sawmill — I'll buy it if only I can get another couple of hundred ahead!"

"Tad!" called Mrs. Weldon from the kitchen. "I guess you'll have to go to town and do a little trading. I haven't a bit of flour in the house, and I used the last of the molasses yesterday. We need some sugar, too, if you can get it; and I should like a pound of that good tea, such as you got me last time. I believe we're going to have a change of weather, — the almanac says it's due about now, — and I'd hate to have a big storm come on while we're short of provisions."

Tad struck his ax into a log. "All right, Mother, I'll take the *J. F.* There's a good breeze, and I can run up and back in one quarter the time it would take old Nell to go halfway by road."

The *J. F.* was Tad's ice boat, which he had built and christened *Jack Frost*. He may well be pardoned if he was more than willing to lay aside his ax for the fun of a twenty-mile spin over the ice in the speedy craft.

"Oh, I wish there were some other way for you to go than on that ice boat!" exclaimed Mrs. Weldon. "I'm always worried for fear you'll get into one of those awful cracks!"

"No fear of that," laughed Tad as he wriggled into his fur coat and pulled his warm cap down over his ears. "There only one big crack on the lake right now, and it's

about five miles out. I shan't have to go within a mile of it."

Like other large bodies of water, Lake Champlain seldom freezes smooth or remains smooth for any length of time. Although the ice may be several feet thick, it frequently opens in long cracks that widen rapidly and close quickly with a force that tilts the ice at a sharp angle. When that has happened a few times, there are long stretches of rough broken ice bordering the cracks. Frequently, the ice on one side of a wide crack will be forced several feet above the ice on the other side.

There were few skippers on the lake who were a match for Tad Weldon in cleverness and in daring; and, although several boats were faster than the *Jack Frost*, Tad had won the open championship race that year, largely because he was ready to take any reasonable risk.

"I promise to be back by one o'clock at the latest, so you needn't worry," called Tad.

It took him only a few minutes to hoist jib and mainsail and then with a wave of his hand to his mother he was off. Once clear of the point, the *Jack Frost* caught the stiff breeze sweeping across from the Adirondack Mountains and leaped forward.

"Fourteen minutes," remarked Tad as he glanced at his watch after bringing the boat up into the wind inside the breakwater in front of the city wharves. "Not bad for ten miles, but she'll do better sailing a little closer on the wind."

It took Tad longer to do his marketing than he had expected, for the town clock struck twelve before he had made his last purchase. As he hurried along he noticed a knot of people gathered round the bulletin board in front of the

office of the *Journal* and wondered what they found so interesting. He had no time to spare, however, and hurried on.

On reaching the boat, his first care was to stow his packages where they would not be jolted off in case he struck rough ice. Setting the jug of molasses in a snug corner at the stern, he tied the handle to the framework.

He had hoisted the mainsail and was preparing to run up the jib when the sound of footsteps caused him to glance over his shoulder. A tall, powerfully built man was approaching; and Tad caught sight of a second man emerging from beneath one of the wharves. The big man carried a suitcase, which he handled as if it were heavy. Stepping close to Tad, he said in a low voice: "My friend and I want to get across to Plattsburg. We're in a hurry. Will you take us over?"

There was nothing unusual in the request; people frequently employ the fast ice boats to get from place to place on Lake Champlain. Tad had picked up many a dollar in that way. He would have liked nothing better than to undertake the trip, but he remembered that he had promised to be home by one o'clock and he could not hope to do so if he made the run to Plattsburg.

"I don't believe I can do it, mister," he said. "Sorry, but I've got to get this stuff home. More than all that, you're not dressed for a trip across the lake; you'd freeze."

"We'll risk that," said the big man.

"Yes, don't let that worry you," added the second stranger, who had come up. "There's ten dollars in it for you if you get us across in quick time."

Tad shook his head. "I'd like to earn ten dollars, but

I promised my mother I'd be back by one o'clock, and it's nearly that now. She worries if I happen to be late."

"Look here, son," growled the big man, "we haven't any time to fool with you. If you won't go for ten dollars, maybe this will persuade you!" And he drew an automatic pistol from the pocket of his overcoat.

For an instant Tad was too astonished and frightened to move. "How — what — " he stammered.

"Keep your mouth shut and do as you're told!" snapped the big man. "Catch hold of that rope, Dugan." Then as the jib fluttered up he ordered Tad to take the tiller and head the boat for the New York shore.

As the *Jack Frost* rounded the end of the breakwater, it met a wind that cut like a knife and that caused the two men to flatten out on the floor. The big man held fast to the heavy suitcase with one hand and grasped the pistol with the other.

"Drive her, boy!" he shouted. "And don't try any tricks with us!"

Tad "drove her," and the thrill of the bullet-like speed set his blood tingling in his veins. Gradually he lost his fear of the man in front of him, and growing anger burned in his heart. Who were these ruffians, anyhow? Why were they holding him up in this way? He ground his teeth. No tricks? Well, while that pistol pointed that way there was not much that he could do, but if they gave him half a chance he would show them something!

Once out upon the broad lake, the *Jack Frost* tore along at the rate of a mile a minute. The numbing cold of the cutting wind was more than Dugan, the smaller man, could bear. Instead of keeping a lookout ahead, he pulled his cap over his face and clung blindly to the framework of the boat.

The other man did not alter his position, but, crouching on the floor with his face toward the stern, kept a watchful eye upon the steersman.

They were running almost parallel to the big crack with its border of rough ice. Little by little Tad edged toward it until his quick eye caught sight of a possible jumping place. A great cake of ice on the near side of the crack lay tilted at an angle that seemed to offer a good take-off for the jump. How wide the crack was at that point or what kind of ice lay beyond it Tad did not know. Setting his teeth, he swung the boat sharply to port and at terrific speed headed for the crack.

Observing the sudden change in direction, the big man glanced over his shoulder to see the reason for it. Before he could regain his position, the *Jack Frost* struck the rough ice with a crash that sounded as if it would smash her to kindling wood. Splinters of ice flew mast high. For a moment the boat flew through space and then landed with a frightful jolt. The next moment it was again skimming on its way over smooth ice.

Dugan, who was clinging to the foot of the mast, dragged himself to his knees and, pulling the cap from his face, glanced round him in a dazed manner.

“What the blazes!” he began; then he caught his breath sharply. “Where’s Jim?” he shouted.

“If you mean your friend, he got off when we jumped the crack back there,” Tad shouted in reply.

“And the suitcase?”

“Took it with him, I reckon. I don’t see it anywhere.”

“Turn this devil boat around and go back for that suitcase!” roared the man. “Half of that suitcase belongs to me!”

"All right," answered Tad. "Back we go!" Swinging round in a wide half circle, he headed again toward the crack.

"I can't see anything of the grip or of Jim," growled Dugan. "Where you heading for anyhow?"

"Got to find a place where we can jump the crack again," Tad shouted in reply. "We're going about two miles from where we crossed before, but there's a good chance just ahead. Better lie down and hang on. Here we go!"

It was not so rough a crossing as the first had been, but it was bad enough, and Tad hoped that his passenger would keep his head down as he had done before.

"If he'll give me six minutes, I can do it," he thought.

One, two, three minutes passed; then Dugan raised his head and stared in front of him.

"Hey, you!" he shouted. "We're headed straight back to where we started from! Turn round and steer for Plattsburg. That suitcase ain't way over here!"

Tad made no reply, but held the *Jack Frost* steadily on her course for the city wharves four miles away.

With a savage oath the man drew a knife from his hip pocket and began crawling toward the stern. "Turn around, I tell you!" he stormed.

For an instant it seemed to Tad that he must obey or else feel the blade between his ribs; then his eye fell on the molasses jug still fixed firmly in its place beside him. With a quick jerk he pulled the bowknot loose and swung the jug over his head.

"Stay where you are," he yelled, "or I'll let you have it!"

Dugan hesitated. They were scarcely six feet apart; the boy could hardly miss him at that distance. The man had no desire to be knocked off while the craft was traveling at the rate of sixty miles an hour. Holding to the boom,

he rose unsteadily to his feet ; and at that moment the *Jack Frost* flashed past the end of the breakwater and swung into the wind close to the wharf.

Still clinging to his jug, Tad sprang from the boat and started for shore at top speed. He expected that the man would pursue him and was determined to defend himself with the jug if necessary ; but Dugan had lost all desire for a fight. Half frozen and aching in every muscle, he dragged himself ashore and was seeking shelter among the lumber piles when a policeman suddenly seized him. At the same time two other policemen halted Tad and demanded that he give an account of himself.

“Well, a couple of men held me up and tried to make me take 'em to Plattsburg,” began the boy.

“Where are they now ?”

“There's one of them,” replied Tad, pointing to Dugan. “The other is out on the lake somewhere — at least, I left him there ten minutes ago. He's a big man, and he was going to shoot me if I didn't take him over to Plattsburg.”

“That's the man we're looking for !” exclaimed one of the officers. “The Collinsville savings bank was robbed last night. Come on, boy. We need your help !”

As they hurried back to the boat, the officer explained that the thieves had stolen fifty thousand dollars in gold and about the same amount in Liberty bonds.

“The news came in about noon,” he said. “We had a description of the men and kept a close watch for 'em, but they were too quick for us. There's a thousand dollars offered for their arrest and the return of the money.”

It was an easy matter for Tad to find the place where he had jumped the *Jack Frost* across the big crack. As they approached the spot, they caught sight of the suitcase. It

was broken open, and a quantity of gold coins and several packages of bonds were scattered round. Drawing their revolvers, the policemen picked their way cautiously through the rough ice, but they had little to fear from the once desperate bank robber. They found him crouched among the tilted ice cakes, trying to shield himself from the biting wind. One arm hung useless at his side, and from a jagged cut on his forehead the blood trickled in a freezing stream down his face.

"All in," he muttered thickly. "World upside down. Some kid, he is. First one ever put anything over on Jim Bailey, and I had the drop on him all the while. He's some kid!"

That seemed to be the opinion of every one. Later the bank officials announced that four hundred dollars of the reward would be divided among the officers who had made the arrests, and that the remaining six hundred dollars would be paid to Thaddeus Weldon, skipper of the *Jack Frost*.

— EDWARD P. HENDRICK in *The Youth's Companion*.¹

¹ Reprinted by permission.

13. KEEPING FIT

This is the second of the series of setting-up exercises intended for practice in reading to get the exact thought.

Read the directions given below very carefully and study the pictures. Then practice the movements as directed.

THIS is a natural movement used in throwing a ball. It is a powerful trunk exercise, using the back and side muscles and bringing into play the large muscles of both arms and both legs.

Stand with feet about eighteen inches apart and with the weight placed equally on both feet. On the count of *One*



FIG. 1.



FIG. 2.

clasp hands lightly, waist high as shown in Fig. 1, shift weight to the right foot, bend the right knee, draw both hands to the right, twist the trunk to the right, and turn the head to the right. The left leg is straight and relaxed, and the left heel is off the floor. The trunk is inclined forward.

On the count of *Two* throw with the right hand, twisting the trunk sharply to the left. The left knee is bent and

the right knee is straight with the heel off the floor. Notice that the body forms a straight line from head to right heel (Fig. 2). The weight has been transferred to the left leg. The right arm is forward and the left arm back (Fig. 2). The force of the throw turns the body in Fig. 2 a greater distance than in Fig. 1, and so the left foot is turned in the direction of the throw.

Do not try to contract the muscles. Perform the movement, and the muscles will contract to carry out your desires.

Repeat the exercise ten times. At first separate it into two parts. After you have learned it, make it continuous and change from the position in Fig. 1 to Fig. 2 and back to the position in Fig. 1 without interruption. After strength and power are developed, the movement may be performed rhythmically twenty times.

— Adapted from *Personal Hygiene Applied*, by Jesse Feiring Williams.¹

¹ Reprinted by permission of W. B. Saunders Company, publishers.

14. HOW GOES THE RAT?

The rat, as you will learn in this article, is a very common and dangerous little animal, yet few people realize how common and dangerous it is.

You will find making an outline helpful in understanding and remembering what this article tells you. The main headings are:

- I. Three kinds of rats.
- II. Why rats are the greatest enemy of man.
- III. Why rats have not been exterminated.
- IV. How to fight rats.

Read the article carefully; then write on paper the main headings given above, leaving enough room under each to write such subtopics as are appropriate. If you cannot fill in all the subtopics at first, study the article as much as is necessary. Then fix the complete outline in your mind.

THREE are more rats in the world than there are people. Indeed, the common brown rats are more numerous than any other kind of animal of their own size or larger.

Besides this most common species of rat, there are many other animals which look more or less like it and are called rats. Most of them are harmless wild animals. In the United States, however, there are three kinds of rats which infest the houses and other buildings made by man. They are the common brown rat, the less common black rat, and the wood rat. Of these, only the wood rat is a native of North America. The others were brought here in ships from Europe.

The wood rats have soft fur, very large ears, and a tail covered with hair. They are much like squirrels in their

way of living. In Mexico they are caught and sold for food. Wood rats, known also as mountain rats or trade rats, are numerous in the western states, especially in forests and on mountain slopes. Most of them live a completely wild life; but when a cabin is built in the woods or mountains, they often make their nests under it. Like other rats they will run through the house at night and carry off food and materials for their nests, but they are far less troublesome than the black and brown rats.

The black rat stole its passage to the New World at an early date and became a pest here as it was in Europe, both on the farm and in town. Although called the black rat, this species includes rats of various colors. Many are bluish black, some gray, some yellowish brown, and a few are white or spotted, such as those sometimes tamed and kept as pets. Both the black rat and the brown rat have coarse hair and a long, naked tail. The black rat has larger ears and a longer tail than the brown rat.

The common brown rat, which was first brought to America about 1775, is bigger and fiercer than the black rat. It has steadily made war on its weaker cousin, and has driven it out so completely in most of this country and in most other lands, that "house rat" now usually means the brown rat. It is called also the wharf rat, and sometimes the Norway rat.

Both the black rat and the brown rat are natives of Asia, but have spread into nearly every land that is occupied by man. They have been, and the brown rat still is, the greatest enemy that man has among all the animals on earth. No other four-footed animal, and no bird or reptile or fish or any one kind of insect, has caused such loss of life and of property as the rat.

The plague, or "black death," which killed half the people of England in the middle of the fourteenth century, and which has killed, all together, twenty-five million people in Europe and untold millions in Asia, is carried from country to country and from house to house by flea-infested rats. This fact was not known until recently. If it had not been discovered by scientists, the United States would no doubt have suffered severely from the plague. The disease has several times been brought here by rats, but each time has been promptly stamped out by a campaign of rat killing and other measures of prevention.

The common rats also carry other dreadful diseases. They have always been loathed and hated as filthy and destructive pests. They live often in sewers, and eat garbage and other refuse; and when they gain access to stores of food, they may defile and spoil more than they eat. On the farm they steal eggs, kill chickens, and destroy much food for man and beast. Not only do the brown rats kill their cousins the black rats, but when food is scarce they will devour one another, like the most degraded cannibals. They sometimes kill a baby, and when cornered will boldly attack even a man. The food and other property destroyed by rats amounts to hundreds of millions of dollars a year.

Why does not man conquer the rat as he has conquered the wolf? How does it happen that, in spite of man's hostility, the brown rat has been able to spread over the world and increase to its present enormous numbers? It lives almost entirely on food provided by man, and has its home in or under the buildings made by man, or within a short distance from them. It would seem, therefore, as if the rat could be exterminated with the traps and poisons and science that man possesses.

The rat has been exterminated in certain cities and districts; but then after a little time those cities and districts have been invaded again by rats from other places.

There are many reasons why the rat is so successful in the struggle for existence; but the important reasons are two: it is very well adapted for the life it leads, and it has many young. The offspring of a pair of brown rats will average thirty or more each year; for the mother rat may have ten or more babies at a time, and she has new babies several times a year. The young begin to breed when six months old.

The rat is well adapted for its way of living. It will thrive on all kinds of food. It is very intelligent — more "brainy" than almost any other animal. It is of the right size to make its way through the spaces in walls and floors of buildings; and it is equipped with strong and skillful paws, claws, and great teeth that will gnaw quickly through almost any building material except iron, glass, and stone.

The rat is a good burrower. It often finds safety in a burrow underneath some building.

It is a good climber, and like a squirrel it can descend rapidly head first, turning its hind feet out so that the claws will cling to an uneven surface and support it in any position. In the Hawaiian Islands when the rats became so numerous that they threatened to ruin the sugar plantations, the planters brought in mongooses to fight them. The mongoose is an animal much like the ferret; it can follow the rats into their burrows and pursue them wherever they go — except in trees. The rats in Hawaii, therefore, took to the tree tops, where they build their nests and live like squirrels.

Both the black and the brown rats are good sailors and great travelers. They live in ships as well as in houses. It is largely by voyages on ships that they have spread so far. There were no rats in Western Europe until the twelfth century, when the black rat arrived on ships with pilgrims and crusaders returning from Palestine. When food becomes scarce in one district, the rats sometimes migrate in hordes of many thousands, crossing fields and roads and swimming the rivers that bar their passage. It was thus that the brown rat entered Europe from Asia; thousands of them were seen to cross the river Volga in 1727. Shortly afterward, others came to Western Europe on ships.

South Georgia is a group of wind-swept islands in the south Atlantic — so far south that they are cold and barren. No men make their homes there, but whaling ships visit them during the season for catching whales. Wherever ships go, the brown rats steal their passage. The half-rotten, half-frozen bodies of whales left on the beach were so many mines of food for them, and now the rats of South Georgia are millions.

In the World War large supplies of food could not be protected from the rats. From far and near they hurried to the feast and became a nuisance even in the trenches on the battle front.

Above all, the rat uses his brain as well as his feet and teeth. He is sly, and quick to learn from experience. A full-grown rat keeps away from traps and poison. He is very clever at finding food. Rats have been known to get liquid food (such as thin jelly) from narrow-necked jars by dipping their tails into it and licking them. They can carry eggs, clasped with their fore legs, even down a flight of stairs, without breaking them.

A smart rat may outwit a man sometimes, but of course he cannot think and reason as men do. Some men have made a business of ridding houses of rats and other vermin, and an expert will make quick work of even the smartest rats. Since rats can live entirely wild in many places, it will be impossible to kill all of them in the whole world. But any building can be made rat proof at small expense. One method is to use cement or concrete to prevent access to cellars or to the hollow spaces in walls and under floors. Agricultural experiment stations have given much attention to the best methods of dealing with rats, and have printed pamphlets about them.

The rat is a thirsty animal, and cannot go long without water. It has sometimes gnawed through a lead water pipe when unable to get a drink in any other way. Its thirst will drive it out of a place where it has no access to water.

There are some diseases that will kill rats but will not affect domestic animals or men. One way to fight rats is to spread such a disease among them.

A hundred years ago, when sewer systems were poor and garbage was commonly thrown into the street, rats were thought to be useful in a city, as consumers of the refuse which otherwise might decay and breed disease. If this was ever true, it is so no longer. When people everywhere know what a serious evil the rat is, they will fight him harder, and in smaller numbers he will cease to be so dangerous and destructive.

15. A JERSEY TEA PARTY

It is important to learn to read rapidly, but it is more important to learn to read well. A pupil who can read both rapidly and well, however, has the most important tool that the school can give.

Wait for your teacher's suggestions before you begin to read.

NEARLY a year after the tea had been thrown overboard in Boston Harbor, a vessel from England — loaded with tea, and bound to Philadelphia — put into Cohansey Creek, a small stream which runs into Delaware Bay, and anchored at the little town of Greenwich. This vessel, called the *Greyhound*, was afraid to go up to Philadelphia, because from that port tea ships were sent back to England as soon as they arrived, as was also the case in New York. So the captain of the *Greyhound* thought it would be a good plan to land his tea at Greenwich, from which place it could be taken inland to its destination. Here the cargo was unloaded, and stored in the cellar of a house opposite the open market place.

This business of forcing tea upon the American colonists had become a very serious matter to England ; for the East India Company had now in their warehouses at London seventeen million pounds of tea, and, if there should be no sale for any of this in the American market, the loss would be very severe. Consequently, every possible method was resorted to, in order to have the tea landed on American soil ; it being believed that, if the tea once got into the hands of the dealers, the people would overcome their prejudices to its importation, and begin to use it again.

Therefore, the captain of the *Greyhound* thought he was doing a very sharp thing when he sailed up Cohansey Creek and unloaded his tea. That cargo was landed, and in those days an English captain of a tea ship might well be proud of having performed such a feat.

But it is not likely that the captain of the *Greyhound* had ever before sailed into a port of New Jersey, large or small, or had anything to do with Jerseymen; for if he had, he would not have been so well satisfied with the result of the voyage.

The people of Greenwich could not prevent the landing of the tea, for there was no organized force at the place, nor could they order the *Greyhound* to turn round and go back to England. A meeting of the patriotic citizens was held, and it was resolved that no tea should go out of Greenwich to comfort the bodies and contaminate the principles of people in any part of the Colonies; and they would show their British tyrants that it was just as unsafe to send tea into Cohansey Creek as it was to send it into the harbor of Boston.

Having come to this determination, they went immediately to work. A party of young men, about forty in number, was organized; and in order to disguise themselves, or to strike terror into anybody who might be inclined to oppose their undertaking, they were all dressed as Indians. They assembled in the market place, and then, making a rush to the house in which the tea was stored, they broke open the doors, carried out the tea, split open the boxes in which it was contained, and made a great pile of it in an open space near by.

When tea is dry and in good condition, it will burn very well, and it was not many minutes before there was a mag-

nificent bonfire near the market place in Greenwich; and in all that town there was not one man who dared to attempt to put it out. Thus the cargo of the *Greyhound* went up in smoke to the sky. It must have been a very hard thing for the good ladies of the town to sit in their houses and sniff the delightful odor, which recalled to their minds the cherished beverage of which, perhaps, they might never again partake. But they were Jersey women, of stout hearts and firm principles, and there is no record that any one of them uttered a word of complaint.

— From *Stories of New Jersey*, by Frank R. Stockton.



16. CHOOSING THE RIGHT WORD

This is another exercise similar to lesson 9, page 39, in guessing the right word to complete the meaning. Read it once. Then decide on the best words to replace the numbers. Write these on a sheet of paper after the proper numbers. A dictionary may help.

MY friend went to the coach office at my (1) and engaged a seat for me; for I was going to visit my old friend, Ham Peggoty. So in the evening I started down the road in that (2). There had been a wind all day; and it was rising then, with an unusually great sound. In another hour it had much (3) and the sky was more (4), and it blew hard.

But as the night (5), the clouds closing in and densely (6) the whole sky, it blew harder and harder, and still increased until our horses could hardly face the wind. Many times the leaders turned about, or came to a dead stop; and we were often in (7) fear that the coach would be overturned. Sweeping (8) of rain came up before this storm like showers of steel; and at those times, when there was any shelter of trees or walls, we stopped because it was almost impossible to go on.

When the day broke, it blew harder. I had been in Yarmouth where the seamen said it "blew great guns," but I have never known the like of this, or anything (9) it.

I put up at the old inn, and went to look at the sea, (10) along the street which was (11) with sand and seaweed. Coming near the beach, I saw not only the boatman, but half the people of the town, (12) behind buildings. Some ones now and then (13) the storm to look away to sea, and were blown out of their course in (14) to zigzag back again.

— CHARLES DICKENS in *David Copperfield*.

17. LIFE ON THE FARM

Life on the farm to-day is quite different from what it was a hundred years ago. This article will tell you how recent inventions have made life on a modern farm attractive. Read it carefully. Make a list on paper of the things mentioned here that were not found on the farm years ago. Be sure to make your list complete.

AHUNDRED years ago, nearly all farm work was done by hand. The soil, perhaps, was turned or stirred with a rude plow drawn by oxen or horses; but seeds were planted by hand, and crops were cultivated with the hoe and harvested by hand or with hand tools. Mowing was done with the scythe, and the hay was raked with hand rakes. On many farms most of the farming tools were made by the farmer himself.

There was no such thing as a wire fence. On many farms no fences were needed, because the fields were surrounded by walls built of the stones. On other farms most of the fences were made of poles or of rough rails split by hand from large logs.

Each farmer and his family, working by hand, produced nearly all the food and clothing that they required. They bought little, and sold little. As there were no railroads, long journeys were often made on horseback or with wagons; but transportation by wagon was so expensive that it did not pay to haul farm crops far for sale. On farms that were distant from the seaboard or from navigable rivers, the most profitable crop was livestock. Cattle and pigs were sometimes driven hundreds of miles on foot to market.

The great difference between farming a hundred years ago

and farming to-day is due to machinery. The railroads have given the farmer easy access to markets for all that he can produce. Modern factories make clothing and tools and farm machinery which the farmer can buy far more cheaply than he could make them himself.

Most notable of all is the machinery for doing farm work. A hundred years ago, planting, cultivating, mowing, haying, harvesting — all were accomplished by man power. But for all this work machinery was gradually invented. For many years the faithful horse was harnessed to operate it, but now the gasoline and steam tractors are taking his place. A single tractor, operated by one man, can do the work of seven horses. With it he will plow as many as twelve acres in a day or cultivate from sixteen to twenty acres. Tractor-drawn seed drills, cultivators, mowing machines, and harvesters have multiplied many times the man power engaged in agriculture and are affording the best solution of the farm labor problem. By increasing the output of our farms and at the same time decreasing the cost of labor, this application of the universal gasoline engine to farm needs is of tremendous importance. A small modern tractor is as powerful as five horses, as enduring as seven, costs less than four horses, requires less care than one horse, occupies less room than one horse, and eats only when it works.

In the dairy industry, to take the place of hand milking has come the power-driven milking machine, a single machine operating upon two cows at once and doing the work with much greater rapidity and thoroughness. The old-fashioned method of setting the milk in pans and waiting for the cream to rise, followed by hand skimming, has been almost entirely displaced by the cream separator, which

does in a few minutes work that formerly required from twelve to fifteen hours, and does it much better.

Modern inventions have greatly changed the methods of farming, and nothing has contributed more to this change than the modern electric light and power plant. If too far away to be connected with a large power plant, a farm may have a small one of its own. A gasoline engine drives a dynamo which generates electric current to charge storage cells, and then this wonderful energy can be conducted by wire to any part of the house or outbuildings, where it may be brought into use by pressing a button or throwing a switch. It produces light and drives all sorts of small machines. It lightens the work of the housewife, adds comfort to the home, keeps the boys and girls contented on the farm, and is a tremendous factor in dispelling the gloom and drudgery of farm life.

And then there is the automobile, that marvelous combination of luxury and utility, which has done more to hitch the farmer's wagon to a star than any other invention. It has widened his horizon, added to his prosperity, and multiplied his means of recreation.

And we must not forget the telephone and free rural mail service, which have been such tremendous factors in banishing the farmer's isolation. The daily paper and the abundance of agricultural and other literature which come to his household have educated him not only socially and politically but professionally as well, for farming is now a profession. It is a science, an industry reborn through the brains and inventive genius of America.

— Adapted from *The Boys' Own Book of Great Inventions*, by Floyd L. Darrow.¹

¹ Reprinted by special arrangement with The Macmillan Company, publishers.

18. HARVESTING GRAIN BY MACHINERY

The story of how man has devised machinery to do more quickly and better the work done by human hands is wonderful. The problem of inventing machines to harvest grain was difficult and complicated. This article tells how it was finally accomplished.

You will find it helpful in getting a clear idea of this story to select the main thought of each paragraph. After you have read once the entire selection, go back and try to summarize on paper in a few words the gist of each paragraph. For example, you might write for the first two paragraphs the following:

1. Early methods of reaping.
2. Development of the hand cradle.

When you have finished, try to memorize your entire outline.

NO more interesting chapter in the history of agriculture can be found than that which tells the story of harvesting machinery. From the ancient Egyptians down to the beginning of the last century, the reaping hook, or sickle, was the sole means of cutting grain. At first the sickles were made of flint and bronze. Later iron and steel came into use, but not until the last century was any substantial progress made in machinery for harvesting.

The scythe, still a familiar tool on all farms, was the first development from the sickle. It differs from the sickle in that it enables the operator to use both hands instead of one. A heavy, clumsy instrument at first, the blade of the scythe was gradually made lighter and the handle lengthened. Then light wooden fingers were added to catch the grain as it was cut and to carry it to the end of the stroke, so that it

might be laid on the ground in a swath ready to be raked up and bound in a sheaf. This scythe with fingers was called a "cradle." It was developed in America during the last quarter of the eighteenth century and quickly spread to all countries. No other hand tool has been devised that equals it for the harvesting of grain. Whereas with the sickle it required seven men to cut, bind, and shock two acres of grain per day, the use of the cradle enables two men to do the same amount of work. Its use, too, has not yet passed, for there are places where the land will not permit the use of reapers and the cradle is the only suitable instrument for harvesting.

The first practical efforts toward harvesting by a machine began about the year 1800. Some attempts in this direction had been made by the Gauls and Romans nearly two thousand years before, but nothing of permanent value resulted. Just preceding and following the year 1800 a number of patents were granted in England to inventors of reaping machines. But all of these were unsuccessful, for as late as 1851 at the World's Fair in London, the United Kingdom was unable to exhibit a reaping machine. For the solution of the harvesting problem the world turned to America, but up to 1831 no practical, working reaper had been developed. In that year came the first crude machine built by Cyrus McCormick in an old blacksmith shop near Steele's Tavern, Virginia.

In the fall of 1831 McCormick hitched four horses to his reaper and drove into a field of oats on the farm of John Steele. Great interest marked the event and a large company of neighbors witnessed the performance. This was the first grain ever successfully cut by machinery. In less than half a day, to the amazement of every one, six acres had

been reaped, or as much as six men would have done in a whole day by the old-fashioned method.

The introduction of the reaper marks a turning point in agricultural progress. Nothing of similar importance in this field had occurred in more than two thousand years. Like all other labor-saving machines, it increased production and decreased its cost, giving the world a tremendous start toward cheaper bread. Strange as it may seem, however, ten years passed before McCormick was able to make his first sale. Two years after the first sale twenty reapers were sold, and in 1844 fifty. He continued to improve his machine and in 1845 went to Chicago, where in 1847 he built a factory and started the world's greatest reaper works.

The first reaper had a platform for receiving the grain, knives for cutting it, and a reel to push the top of the stalks over so that they would fall on the platform. The driver rode one of the horses while another man walked beside the reaper and raked off the grain. A little later a seat was added for the raker, and then an automatic rake, another labor-saving device.

From 1857 to 1870, a number of other men, among them W. H. Kirby, D. M. Osborne, and William N. Whitely, secured patents on improved reapers and formed companies for their manufacture. But up to this time no one had been able to devise a successful binder for the reaper. The grain was cut and raked off, or dropped, in bundles, after which it had to be bound by hand. The first attempt at solving this problem was made by two farmer boys of DeKalb, Illinois, the Marsh brothers. They devised means to lift the grain to a table where two men, who rode on the machine, bound the bundles and dropped them to the

ground. Up to 1879 about one hundred thousand machines of this type had been built and sold.

The next development was the self-binder. Many inventors worked upon the problem, and necessity being so great, its solution was not long delayed. In 1865, S. D. Locke secured a patent which was developed into the Withington wire binder, first manufactured by McCormick in 1875. The device consisted of two steel fingers that twisted a wire band about each bundle of grain.

The wire binder, however, was not popular with the farmers; and, in 1878, John F. Appleby perfected a twine binder attachment. Its steel arms would pass a cord about a bundle of grain, tie a knot, cut the cord, and throw off the sheaf. Here at last was what the world needed. The mechanism worked perfectly and was quickly adopted by the leading manufacturers of harvesting machinery.

The reaper as thus developed is the reaper or binder of to-day. Improvements designed to make the machine more durable and reliable, lighter to draw, and requiring fewer field laborers, have been added. One of the latest improvements is the hitching device which makes possible the hauling of two or more binders by a single tractor. Control devices enable a man on the binder seat to operate the tractor. Attachments have also been added for placing the grain in shocks, thus doing away with the necessity of having men follow the machine in the field.

In the early days, as even now in some parts of the world, grain was threshed by pounding it out from the straw with a jointed club called a flail. In China oxen are driven over the straw placed on a hard floor, and the tread of their feet separates the grain.

When the farmer was required to produce no more than

was sufficient for his own needs, such primitive methods passed as satisfactory. But with an ever-increasing demand for bread and with improved methods of cultivation and reaping, a more rapid means of separating the grain became a necessity. And the race has always had a way of solving such problems. In this case the answer was the modern thresher, or grain separator, run by a steam or gasoline engine and capable of threshing out more than one thousand bushels of wheat per day. And then for the big wheat farms of the Far West came the combined harvester-thresher drawn in some cases by from twenty to thirty horses or mules and in others by several powerful tractors. A single machine and four men will reap, thresh, and bag from two to three thousand bushels of wheat in a day.

Thus in little more than half a century the methods of harvesting were entirely changed and more progress made than in all the centuries that had preceded. When we consider that agriculture is the basic industry without which the race would starve, we see the immense significance of all this. Anything which increases the output of the soil lessens the world's hunger and makes possible the present highly organized state of society and industry by which so large a percentage of the people must be fed by the efforts of comparatively few. According to the census of 1910 there were engaged in agriculture in the United States thirty-two and one half per cent of the population; in other words, about one third of the population feed the whole. And not only this but they produce large quantities of foodstuffs in excess of our own needs for export to foreign nations.

— Adapted from *The Boys' Own Book of Great Inventions*, by Floyd L. Darrow.¹

¹ Reprinted by special arrangement with The Macmillan Company, publishers.

19. HOW TO CONDUCT A MEETING

Whenever men and women gather in a group to accomplish a common purpose, it is found necessary to have some rules of order. Unless these rules are observed the meeting usually does not go smoothly and it is hard to get things done. Through constant use these rules have become very definite. Until we are used to them they may seem very formal and stiff, but each rule has grown out of a need.

Since so many of our public duties are performed in meetings, it is necessary for all citizens to know the rules. If in school you have a class organization, it should follow these rules in its meeting. The directions given below are for the first meeting of any organization. Read them carefully and then answer the test questions below. Refer to the directions as often as you need to do so.

When you have talked over the answers to the questions and learned the rules, you will be ready to hold your meeting. It will be better if you have a real club, such as a Civic League or a Current Events Club. Any organization should have a handbook of rules to guide its officers and meetings.

WHEN any number of persons who have previously agreed to meet for the purpose of organization are assembled, any one present may rise and say, "I move that Mr. (or Miss or Mrs.) — act as chairman." Any one else present, either seated or standing, may say, "I second the motion." The maker of the motion, standing, should then say, "It has been moved and seconded that Mr. (or Miss or Mrs.) — act as chairman. All in favor say aye" (Pronounced like *eye*). "All opposed say no." If the maker of the motion is satisfied that a majority have voted aye, he should say, "The motion is carried." "Will Mr. (or Miss or Mrs.) —

please take the chair?" If he is satisfied that a majority have voted no, he should say, "The motion is lost. I will receive the nomination of some one else." If more than one person be nominated, the maker of the motion shall first put before the assembly the name of the person whom he first heard and so on until a choice is made.

The person elected should immediately take the chair; and may speak very briefly of the honor conferred upon him, or of the purpose of the organization, or of both. The newly elected chairman may call for the nomination of a secretary, tellers, etc. to be elected in the same manner as the chairman, by saying, "Nominations for secretary are in order," or "I will receive nominations for secretary, etc."; or he may simply say, "What is your further pleasure?" and await the action of some member.

If a permanent organization is planned, after the election of the chairman, secretary, and tellers, either the chairman or some one previously agreed upon, at the call of the chairman, should set forth the purpose of the meeting somewhat in detail. This person usually concludes his remarks by offering a resolution, previously prepared. This resolution is usually passed to and read by the secretary. A motion to adopt the resolution is then in order and when made and seconded may be freely debated by any one present. Such a resolution might read, "Resolved, that it is the sense of this meeting that a club shall be formed in this school for the purpose of ——."

If the resolution as read or as amended is adopted, some one should make a motion that the chairman appoint a committee (specifying the number to be on the committee) to draft a constitution and by-laws for such an organization as has been agreed upon by the resolution just passed. If

this motion is carried, the chairman usually appoints the committee or announces his intention of doing so later. A motion to adjourn to some definite time or place may now be made. Such a motion is debatable. Or a motion to adjourn, or to adjourn subject to the call of the chairman may be made. Neither of the two latter motions is debatable. If the motion to adjourn is carried, the chairman says, "We stand adjourned, subject to the call of the chair," or whatever the words of the motion to adjourn were.

— From *Students' Handbook in Parliamentary Law*, by Frederick Leighton.¹

QUESTIONS

1. Should you stand when making a motion?
2. Do you need to stand to second a motion?
3. If you wish to vote for a person or a motion, what do you say?
4. What does *majority* mean?
5. When is a motion carried?
6. When should an elected chairman take charge of the meeting?
7. What should he do at once?
8. When the temporary officers are elected and the organization is to be permanent, what should be done?
9. Write out a suitable resolution for your own meeting, using the form given.
10. Who usually appoints a committee?
11. What different kinds of a motion to adjourn may be made?

¹ Reprinted by permission.

20. WHY WE LOVE LIBERTY

Since we are Americans and speak English, we should remember that the great English-speaking nations have always been lovers of liberty. For hundreds of years before our ancestors declared their freedom from England by the Declaration of Independence in 1776, the English had been struggling to establish certain principles of freedom that we now enjoy as a matter of course. This struggle for freedom was long and bitter, and it interests us because we have profited by it.

This selection tells about one of the first great events in the story of liberty. First read it carefully and then try to answer these questions; you will probably need to read the selection more than once in order to answer them correctly.

1. About how many years before the Declaration of Independence was the Great Charter signed?
2. Mention three or four important rights that the Great Charter promised.
3. We fought the War of Independence to establish the principle of "no taxation without representation." Was this a new idea at that time? Prove your answer.

THE forefathers of the English race were the Saxons and their cousins of other tribes who moved across the North Sea to England about fourteen hundred years ago. They carried with them a love of freedom which all English-speaking people still cherish.

In the year 1066, however, an army of Normans crossed over from France and conquered the English. Their leader became king of England, and he and his descendants have held that title from that day to this. The Norman invaders mingled with the English, and in less than a hun-

dred and fifty years the two peoples became one. At that time happened one of the greatest events in English history.

In the year 1215 a king whose name was John was ruling in England. He had no right to the throne, but had taken it by force and fraud. In fact, he was not an Englishman ; he had no kinship with the liberty-loving Saxon people over whom he reigned ; he was not even a true Norman, for three of his four grandparents were French.

There had been a time when this John was not only the king of England but the ruler also of half of France. England then had been to him only a foreign land, to be visited now and then, and to be robbed and plundered at his pleasure. In a long war with the king of France he had lately lost his French dominions, winning thereby the nickname of John Lackland. England was now his only realm, his only country ; but it was a realm to be pillaged, a country to be oppressed. Little did he care for the peace and prosperity of the English nation ; little thought did he take for the happiness of the English people.

He spent his time in drinking and carousing, in plotting how he might win back his lands in France, and in planning how he might rob his English subjects not only of their property but of their freedom. The friends whom he had about him were as treacherous and false as himself. No one could trust him ; no one could believe him. The English people hated him ; the Norman lords and barons distrusted him and despised him ; the pope at Rome had declared him unfit to wear a crown.

“Why should I have any regard for these English people ?” he cried in a rage. “Let the barons say what they will, I shall yet show them that I am the king and that my will is law.”

For years King John had been robbing his subjects and imprisoning those who opposed him. At length the lords and barons of England, led by brave Stephen Langton, rose in revolt against him. They met at a church, and on the high altar each man swore to demand from the tyrant a solemn charter of rights and privileges for all free Englishmen ; and this they declared they would have or wage war against him to the bitter end.

The revolt spread to every part of the kingdom. Of all the knights in England, only seven remained true to the king — and they were men of no repute among their fellows. At length the barons, led by Stephen Langton, came with their armed men to London and made their demands.

“Why do you not ask me for my kingdom?” shouted John in great rage.

Everywhere, the people joined in the cry against the king’s injustice. They gathered at the gates of the royal palace ; by dozens and by hundreds they came from distant towns and counties, boldly demanding for themselves the rights of Englishmen.

The king was so badly frightened that he hid himself in his bedchamber. Then, when Stephen Langton found him and read to him a list of the grievances which he must redress, he fell into a great rage and declared that he would never submit. At last, however, when he found himself deserted and alone, he sent word to the barons that he would agree to whatever they desired and would meet them, when and where they chose, to sign their charter of liberties.

“Then,” said the barons, “let the place be Runnymede, and let the time be the day after to-morrow, without delay or postponement.”

And so it was agreed.

On Monday, the fifteenth of June, in the year twelve hundred and fifteen, the lords and barons came with their armed men to the place appointed. Thither also went the king unwillingly; and, burning with rage, he signed the *Magna Charta* (*kar'ta*) — the Great Charter by which the rights of the English people were stated and assured to them so long as the English government should endure.

If ever you should visit the British Museum at London, you may see there the one copy of the Great Charter which still exists — a fire-scorched, shriveled parchment, with the seal and faded signature of the wretched king affixed. For more than seven centuries it has been preserved and revered as the earliest monument of English freedom. It is the oldest written guaranty of the privileges and liberties which we, in common with all English-speaking people, have inherited from our Saxon forefathers.

Let us take note of some of the rights that were guaranteed in the Great Charter. Among many other things of less general importance, the king, as sovereign lord of the English nation, agreed and solemnly promised :

- (1) That he would not require of the barons any unreasonable or oppressive services; the barons likewise agreeing to be equally mindful not to require burdensome duties of the common people who were their dependents.
- (2) That no freeman should be imprisoned or otherwise punished except by judgment of his peers, or by the law of the land.
- (3) That right or justice should not be sold, delayed, or denied to any man.
- (4) That no taxes, fines, or impositions for the king's personal benefit should be levied except by consent of the common council of the realm.

The king wrote his name and affixed his seal as the barons demanded ; but this was not enough. For who could trust a king so false and so treacherous ?

Accordingly, a council of twenty-five men, brave and true, was chosen to keep watch over him and force him to observe every agreement contained in the Charter.

At this the king's rage knew no bonds.

"They have given me five-and-twenty overlords !" he cried. And when he was safe back in his palace, he threw himself upon the floor and raved like a caged beast.

A pretty sort of king he was, but there was no help for him. The Charter was published and made known wherever there were English men ; and in every town meeting throughout Saxon England brave men united in declaring that never should John Lackland or any other king be released from the promises and agreements specified and sworn to in that immortal document.

John Lackland's son and successor, Henry III, was but a boy when he became king. He was impulsive and ill-tempered, and wholly selfish. His one idea about government was that the people had no rights ; and his one ambition was to win back the lands in France which his father had foolishly lost.

"What do I care for that Charter ?" he asked. "It was won by force from my father, and I am not bound by it. I am the king, and I shall do as I please."

And so the conflict between the king and the people was renewed. So long as Stephen Langton lived, the cause of freedom had an able and fearless advocate. The Great Charter was his special care, and so great was his power that he more than once forced the king to observe its agree-

ments. But after the death of this great patriot, things grew rapidly worse.

Henry III, the new king, surrounded himself with foreign favorites, relatives, and friends of his wife, whom he brought over from France. They held all the high offices in the kingdom; they occupied the royal castles; they controlled the king's army. The English people were taxed and plundered and deprived of the rights that had been guaranteed to them by the Great Charter. All the power of government was in the hands of men who despised the principles that our forefathers had held sacred.

At this perilous time, however, another man — Simon de Montfort — came forward as the enemy of autocracy and the friend of human liberty. He was a native of France, a nobleman of high rank, a brother-in-law of the king — yet he is to this day revered among Englishmen as one of the world's greatest patriots.

Not long afterwards, when the barons had resolved to make war on Henry, as they had warred against his father, Sir Simon was among the first to give them aid.

For a long time this second war dragged along with varying success, but at last the cause of freedom prevailed. The fight was won by the barons, with the English people as their helpers and strong allies. The king was shorn of his power, his foreign friends were banished, and the Great Charter was again confirmed and declared to be the law of the land. Saxon grit had again won the day.

— Adapted from *The Story of Liberty*, by James Baldwin.¹

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21. HOW THE STRUGGLE FOR LIBERTY WAS WON

The previous selection was an early chapter in *The Story of Liberty*. This article is the next chapter. First read it through carefully in order to get the main events of the story. Then reread it and study it as much as is necessary to answer these questions.

1. About how many years before the Declaration of Independence was the Petition of Right signed?
2. Was the principle of "no taxation without representation" promised to all Englishmen by the Petition of Right?
3. What rights promised by the Petition of Right had already been promised by the Great Charter?

After studying this selection and the one previous, what questions of your own have you to propose for class discussion or as a basis for further study?

FOUR hundred and thirteen years after the signing of the Great Charter a king was ruling England who had no respect for charters and no love for his people. The name of that king was Charles Stuart; and because there was a later sovereign of the same name, he is known in history as Charles the First. Next to John Lackland, he was the worst foe to freedom that ever sat upon the throne of England.

He very soon made it known that he expected to have his own way in spite of people and Parliament. He declared that God had given him the right to rule, and that he would not be called to account by anybody. Was he not king? Were not the English people his property, to do with as he pleased? As for human liberty, what was

it? It was the right of the king alone. The people existed only for his pleasure.

He wanted money to carry on a foolish war with Spain; and as his treasury was empty he ordered the House of Commons to get it for him by levying a tax upon the people. The Commons agreed to give him a part of what he demanded; but they said they would hold back the rest until he should agree to restore to the people all the liberties and privileges which by right belonged to them.

This of course was not at all to the king's liking. He flew into a rage and commanded the Commons to make haste and do his bidding or he would show them that he could rule without their help or hindrance. "Remember," he said, "that Parliaments are altogether in my power; and therefore, as I find their acts to be good or evil, they are to continue or not continue."

He then began to raise money for himself in his own way. He commanded the people to lend him large sums, and sent officers and armed men into every county and town to oblige them to pay. If a poor man was unable to lend what was required, he was made to join the army or the navy. If a rich man refused, he was put in prison.

And now John Hampden, a member of the House of Commons and a man of great influence, came boldly forward in defense of the people's rights. The sum of money which he was required to lend was small, and he might easily have given a hundred times as much. But he was a patriot and, as such, he was contending for a principle most dear to every true patriot's heart.

"I might be content to lend," he said; "but I fear to draw upon myself that curse in the Great Charter, which should be read twice a year, against those who disregard it."

For this bold answer, he was shut up in prison without any reason being given except that the king had ordered it. His treatment in prison was so cruel that, when he was at length set free, his friends scarcely knew him; and one of them wrote, "He never afterwards did look like the same man as he was before."

All over the kingdom men were beginning to ask, "Are not these acts of the king in violation of the Great Charter



NOTTINGHAM CASTLE, HOME OF CHARLES THE FIRST

by which the rights of Englishmen have been assured through many centuries? Is not King Charles trampling upon the liberties which belong to us as a free people?"

To silence such complaints the king had these questions submitted to the high court whose judges were in his pay. The judges decided that there had been no violation of the Charter, and therefore no trampling upon the people's liberties.

"Such acts," said they, "would be wrong; and everybody should know that the king cannot do wrong."

Soon, however, Charles found out that it was not so easy to rule and rob a discontented people; and he called another Parliament.

John Hampden had been released from prison, and his friends and neighbors at once re-elected him to the House of Commons. The king was still clamoring for money. The Commons listened to his demands, and then agreed to levy certain taxes, provided he would give his full and solemn assent to a document which they had prepared and now laid before him.

This document, which was in fact a second great charter of liberties, is known in history as the Petition of Right. It was in some respects very similar to the Great Charter of King John. It provided, among other things:

- (1) That the free men of England should never again be forced to lend money to the king.
- (2) That no taxes whatever should be levied upon the people without the consent of their representatives in the House of Commons.
- (3) That no person should be imprisoned except after due trial according to law.
- (4) That no Englishman should be compelled, contrary to his wishes, to entertain soldiers or sailors in his house.
- (5) That no person should be tried by martial law in times of peace.

It was no easy matter for Charles to agree to all these provisions, for he had already violated every one of them and was determined to violate them again at the first opportunity. But he wanted money very badly, he wanted it without delay, and the only way to get it was through

the House of Commons. After all, was he not king, and might he not break his word whenever he saw fit?

“A fig for all your Petitions of Right,” we hear him saying, as he signs his name without any intention of keeping his promises.

Now all might have gone well if Charles Stuart had been an honest man, but he had already given proof that he could not be trusted.

No sooner had the Commons agreed to levy the tax than he renewed his old practices of robbing and imprisoning his subjects. “There is no law to bind me to this agreement. I am the king, and the king is above all law.”

What could Parliament do now? It was a time for Saxon grit to assert itself once more to save the country from the tyranny of such a king.

Sir John Eliot, another patriot whose name should be remembered, arose in the House of Commons and offered a series of resolutions condemning the recent acts of the king. At once there was great confusion, and the speaker of the House — who was friendly to Charles — got up to leave the room. This would have obliged the Parliament to adjourn without doing any further business; but two members of the House immediately seized him and held him down in the chair. “You shall sit until we please to rise,” said one whose name was Denzil Holles.

Some of the members rose to leave the room; but the door was locked.

Then Sir John Eliot again read the resolutions and called upon the speaker to do his duty by putting them to a vote. The speaker refused; but Denzil Holles, standing by his chair, took that duty upon himself, and the resolutions were passed by a large majority.

These resolutions stated very plainly what all patriotic men thought of the king's high-handed acts. They declared that any person who advised the levy of taxes without the consent of Parliament, or who in any way opposed the Petition of Right, was an enemy to the people and a betrayer of human liberty. This was strong language and was aimed not only at the king, but at his ministers and chief advisers.

The Parliament had done its work. When the king heard about it, he went down with his officers and armed guards to let the Commons know that he had no respect for them. He made a speech in which he called those who had voted against him all sorts of vile names; then he dissolved the two Houses, sent the members to their homes, and for eleven years actually ruled without a Parliament.

As for Sir John Eliot and the two men who had held the speaker in his chair, they were locked up in prison; and there, some time afterward, Sir John died — “the first martyr of English liberty.”

What of the king during those eleven years in which he ruled alone? We may be sure that he paid no heed to the Great Charter nor yet to the Petition of Right, which he had signed with his own hand. He seized upon the goods and money of his subjects whenever it suited his pleasure. He crushed the people by unjust taxation. He made promises only to break them. He punished without law or mercy those who dared to oppose him.

Long before the eleven years had passed, mutterings of rebellion began to be heard in all parts of the land. At length, thoroughly frightened by the storm that was threatening him, Charles called another Parliament. To this Parliament came John Hampden and other patriots, now

more than ever determined that justice and truth should prevail. Very fearlessly they discussed the various acts of the king, and fearlessly they resolved not to grant him his wishes until he had solemnly bound himself to observe all the conditions and agreements of the Great Charter and the Petition of Right. King Charles, seeing that he would gain nothing from such a Parliament, fell into a great rage and dissolved it. It had lasted only twenty-three days, and for that reason it is known in history as the Short Parliament.

Charles had learned by this time that he could not rule alone, and such was his extremity that he was soon obliged to call another Parliament. This Parliament is known as the Long Parliament, for it lasted nearly twenty years.

The Commons soon declared their independence of the king, and a desperate civil war ensued. Battle after battle was fought, sometimes ending in favor of the king's men, sometimes in favor of the champions of freedom.

Every boy or girl who has studied history knows how this war between king and Commons ended. Charles was finally beaten and obliged to give himself up. A High Court of Justice composed of one hundred and thirty-five persons was appointed by the Parliament to try him on the charge of treason. At the end of the trial the court pronounced sentence of death upon him as a tyrant and traitor.

Thus, Liberty was again triumphant.

— Abridged from *The Story of Liberty*, by James Baldwin.¹

¹ See page 84.

22. KEEPING FIT

Like exercises 5, page 26, and 13, page 56, this is a lesson in getting the exact thought from a selection.

Read the directions given below very carefully and study the pictures. Then practice the movements described. These will make good exercises not only for class use but also for individual use at home.

THIS is a natural movement used in lifting an object from one side of the body to the other, or from a low level to a higher one. It is a good exercise of the back and leg muscles.



FIG. 1



FIG. 2

Stand with the feet about eighteen inches apart. On the count of *One* bend the right knee and reach with arms to the right of the right foot about twelve inches from the

floor (Fig. 1). The left leg is straight, the back is flat, and the movement occurs in the hip and knee joints.

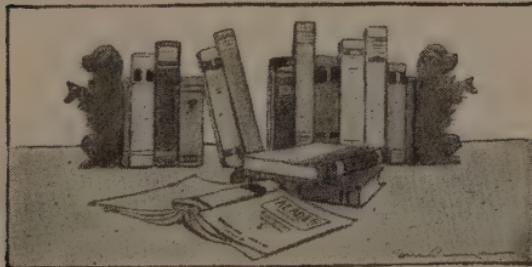
On the count of *Two* lift an imaginary object to the left and place it high above the head (Fig. 2). Vigorous muscular stretching should occur in this part of the movement while the weight is being shifted to the left foot and the right leg is relaxed with the right heel off the ground.

Avoid tenseness in the movement; seek smoothness and constantly adjust the body in the different parts of the exercise by comparing the movement with the illustration.

Repeat the movement ten times.

— Adapted from *Personal Hygiene Applied*, by Jesse Feiring Williams.¹

¹ Reprinted by permission of W. B. Saunders Company, publishers.



23. MOLLY PITCHER

You can read rapidly by definite practice. It will do you no good, however, to read fast unless you get the meaning of what you read.

Do not begin to read this selection until you are told to do so by your teacher.

AT the battle of Monmouth, where Lord Stirling so distinguished himself for the management of the artillery, another person of an entirely different station in life, of different nationality, and even of different sex, played a very notable part in the working of the American cannon on that eventful day.

This was a young Irish woman, wife of an artilleryman. She was of a different disposition from some women, who are glad enough to hide themselves in places of safety if there is any fighting going on in their neighborhood. Molly was born with the soul of a soldier, and, although she did not belong to the army, she much preferred going to war to staying at home and attending to domestic affairs. She was in the habit of following her husband on his various marches, and on the day of the Monmouth battle she was with him on the field.

The day was very hot. The rays of the sun came down with such force that many of the soldiers were taken sick and some died; and the constant discharges of musketry and artillery did not make the air any cooler. Molly devoted herself to keeping her husband as comfortable as possible, and she made frequent trips to a spring not far away to bring him water; and on this account he was one of

the freshest and coolest artillerymen on the ground. In fact, there was no man belonging to the battery who was able to manage one of these great guns better than Pitcher.

Returning from one of her trips to the spring, Molly had almost reached the place where her husband was stationed, when a bullet from the enemy struck the poor man and stretched him dead, so that Molly had no sooner caught sight of her husband than she saw him fall. She ran to the gun, but scarcely had reached it before she heard one of the officers order the cannon to be wheeled back out of the way, saying that there was no one there who could serve it as it had been served.

Now Molly's eyes flashed fire. One might have thought that she would have been prostrated with grief at the loss of her husband, but, as we have said, she had within her the soul of a soldier. She had seen her husband, who was the same to her as a comrade, fall, and she was filled with an intense desire to avenge his death. She cried out to the officer not to send the gun away, but to let her serve it; and, scarcely waiting to hear what he would say, she sprang to the cannon, and began to load it and fire it. She had so often attended her husband, and even helped him in his work, that she knew all about this sort of thing, and her gun was managed well and rapidly.

During the rest of the battle, Molly bravely served her gun. Of course, all the men in the battery knew Molly Pitcher, and they watched her with the greatest interest and admiration. She would not allow any one to take her place, but kept on loading and firing until the work of the day was done. Then the officers and men crowded about her with congratulations and praise.

— From *Stories of New Jersey*, by Frank R. Stockton

24. ARE YOU CAREFUL?

Below are listed a number of suggestions that, if followed, will prevent accidents. Read them all very carefully; then take a sheet of paper and write the following headings, leaving a considerable space under each heading.

I AM CAREFUL ABOUT THE FOLLOWING

I SHOULD BE MORE CAREFUL ABOUT THE FOLLOWING

Now read the list again and write under each heading the number of the suggestion that applies to you personally. You do not need to write out the suggestion; merely indicate the number that appears opposite it.

AT HOME

1. Use only "strike on the box" safety matches.
2. Never take a lighted match or a candle into a closet to look for something. Use an electric flashlight or a lantern.
3. Do not use kerosene or gasoline when lighting a fire.
4. Never allow rubbish to accumulate in the attic, cellar, closets, or anywhere else. It not only spreads disease but is responsible for most fires.
5. Keep all stairways and sidewalks clear. Remove anything that may cause others to trip, slip, or fall.
6. Keep your yard free from broken glass, rusty wire, and projecting nails.
7. Be on the lookout for sharp knives, and other sharp-edged things. They should be kept out of reach of small children.

8. See that fire escapes and halls are kept free from obstruction.
9. Keep medicines away from the reach of small children. See that all bottles or packages are plainly labeled.
10. Disinfect all cuts and scratches immediately and keep the injured member clean.

IN THE STREET

11. It is dangerous to play in the streets. Hunt for a playground, a street closed to traffic, a park, or a vacant lot.
12. Cross streets at the corners and at right angles, instead of diagonally.
13. Do not cross street immediately in front of a moving vehicle or behind one.
14. Accidents due to hitching to autos or wagons with carts or roller skates are very common.
15. Be careful in crossing behind a vehicle; another may be coming in the opposite direction.
16. Wait for the policeman's signal, that you may not interfere with traffic.
17. When waiting for a car, stand on the curb, not in the street.
18. Watch for teams and autos when you get off cars. Look both ways.
19. Always wait until the car stops, before you get on or off.

AROUND RAILROADS

20. It is dangerous to play along railroad tracks or on railroad bridges. Trains may be expected from either direction at any time.
21. Keep out of railroad yards.

22. Keep off sidings and cars standing on tracks.
23. Riding on steps and platforms is dangerous, as is climbing through cars when they are standing or moving. Wait until the car stops to get on or off.
24. When crossing railroad tracks, stop and listen; look in both directions.
25. To walk around lowered gates or crawl under them is dangerous.
26. It is dangerous to let any part of your body project from the car window or platform.
27. Be careful. In crossing, make sure that there is no danger from a train on another track. Wait! It is dangerous to cross in face of a moving train or car or close to the rear of a standing train or car.

— Adapted from an *Introduction to Safety Education*, issued by the National Safety Council.¹

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25. HOW TO STUDY GEOGRAPHY

Knowing how to study usually depends upon knowing how to read intelligently. Reading is more intelligent and profitable if the reader has definite questions that he wishes to have answered by his reading.

This article about the cotton and woolen industries of England is taken from a textbook in geography. First ask yourself what you already know about cotton and wool, and then form a few questions that you would like to have answered by this article. Before beginning to read, discuss these questions in class.

Often the author himself, being an expert in the subject, has organized his article around some important question, and his question is likely to be more important than the reader's. As you read this selection in order to answer your own questions, see if you can find one that the author is trying especially to answer. After you have found it, read the article again to find the complete and accurate answer.

Reading in this way helps to distinguish between important and less important facts, and, by organizing the ideas, helps the reader to remember the information better.

What are some further questions of your own that you would like to have answered about cotton or wool?

Cotton Manufacture. The manufacture of cotton goods is the largest industry in Great Britain, and yet every fiber of the raw material must be imported. The United States supplies more cotton than any other country, though much comes from Egypt and India. Much of the cotton is brought by sea to Liverpool and then sent by rail or boat to the manufacturing towns in Lancashire. Manchester is the greatest city in the cotton district, and is the money and banking center for the cotton trade. The city of Manchester has dug a ship canal thirty-five and one half miles long and twenty-eight feet deep from Manchester to the

sea, so that cotton and other freight can reach the city without stopping at Liverpool.

About two fifths of all the cotton spindles of the world are in England, and more than half of the product, in value, is turned out by English mills. There are several reasons for the greatness of the industry.

(1) Englishmen first invented the machinery that was needed. More than one hundred years ago two men, named Hargreaves and Arkwright, invented machines for spinning cotton, which made it possible to turn out more and better goods and thus decrease their cost. In those days woolen manufactures were much more important than those of cotton, but now the cotton industry is much the larger of the two. At first the workmen were very angry over the inventions of Hargreaves and Arkwright, because they feared that the machines would enable a few men to do the work and that many men would have no employment. The demand for cotton manufactures has so increased in all parts of the world, however, that now far more workmen find employment than before.

(2) Lancashire, the great cotton-spinning region, is in the rain belt of western England, and the moist air is favorable to working the delicate fibers of the cotton.

(3) The manufacturing region is favorably located for ocean trade. The estuary of the Mersey allows large ships to reach Liverpool, so that the cotton is brought by water close to the mills, and a short haul carries the cotton goods back to the sea again.

(4) The enterprise of the British people has led to the development of trade with all parts of the world. Even the United States, which raises and manufactures much cotton, buys some English cotton goods. Raw cotton may

be sent from Texas fields to England, there made up into cloth, and finally sent back to Mexico, to be sold just across the Rio Grande from the state in which it was grown. At the same time the bread-stuff for the operatives comes to Liverpool from North America, Argentina, Egypt, and other countries, while cattle and beef and dairy supplies are shipped in from Canada, Argentina, Australia, and New Zealand.

Woolen and Other Manufactures. Leeds is the center of woolen manufacture, and other cities near it have a share in the industry. All these cities are near the Yorkshire coal fields, which furnish the power to run the machinery. Woolen manufacture began there because sheep were kept on the pastures of the Pennine Chain. Now, although Great Britain still has many sheep, and produces much wool, more than three fourths of the wool needed in its factories is imported. Australia sends the most, while Argentina and South Africa send some.

There is a great demand for British woolen goods. Many kinds of woolen cloth are brought from Great Britain and sold in American stores and tailor shops. One of these is worsted, which took its name from a village of that name in eastern England. Another is the tweeds, which are made at a number of places in the lowlands of Scotland. Broadcloths, cashmeres, merinos, and serges also are made of wool, as are likewise many kinds of the best carpets.

— From *Essentials of Geography, Second Book*, by A. P. Brigham and C. T. McFarlane.¹

¹ Copyright, 1916, 1920, 1925, by the authors, American Book Company, publishers.

26. USING BOOKS OF REFERENCE

In the last exercise you probably found many questions about cotton that you would now like to have answered. For example:

1. What does a cotton plant look like and where does it grow?
2. How is cotton cloth made from a plant?
3. What articles do we get from the cotton plant?

To find answers to such questions you would naturally turn to an encyclopedia or some other book of reference. This article about cotton is taken from an encyclopedia. Select the question you are going to try to answer. As you read, you should skim over the paragraphs looking for the facts you need, only pausing to read carefully when you find something that concerns your question.

Cotton. Over 400 years before the birth of Christ, the Greek historian Herodotus wrote about a marvelous land in Asia, from which travelers returned with stories of a tree that bore wool "exceeding in goodness and beauty the wool of any sheep." The "fleece-bearing tree" that called forth the praise of these travelers is the wonderful plant from whose fibers much of the clothing of the civilized world to-day is made, and whose seeds furnish food for man, beast, and soil. It is a plant deserving well to be called exceedingly good and beautiful, and to bear the title so often conferred upon it, — King Cotton. Since the days of Herodotus many have told of its merits.

Brooks in his *Story of Cotton* writes:

"Cotton to-day is the friend of the poor and the luxury of the rich. It is made into cloth so coarse that it sells for a few cents a yard. It is made into fabrics so fine and so

beautiful that it can hardly be told from silk, and so heavy and so thick that experts can barely distinguish it from wool. It is made into rope and cord so strong that it is almost the equal of flax or hemp, and into thread so fine that one pound will reach more than a hundred miles. Every year manufacturers discover new ways of preparing it, and every year the demand for it increases, and the world, it seems, cannot have enough of it. And if, through some calamity, we should lose all goods made entirely or partly of cotton, and if all people should be thrown out of employment whose occupation is, in any way, dependent upon it — whether in the cultivation, the manufacture, or the commerce — the civilized world would be all but naked, a large per cent of it would be hungry, and all homes would be bare and comfortless."

Varieties. Differences of soil, climate, conditions, and methods of cultivation have tended to produce many different varieties of the cotton plant. There are variations in the height to which it grows, in the quality and length of the hair-like strands, or fibers, that form its lint, and in the color of the lint. Cotton fibers range in length from half an inch to nearly two inches, and it is the length and fineness of these fibers, not the size of the stalk, that determine the value.

From a commercial standpoint the most important varieties are the sea-island, the Egyptian, the Peruvian, and the upland. The sea-island leads all others in the length and quality of its fibers. These have an average length of 1.61 inches, and they are so fine that one pound can be spun into a thread 160 miles long. This plant grows to a height of twelve feet or more. It is cultivated most successfully along the coast region of South Carolina,

Georgia, and Florida, especially in the sea islands off the South Carolina coast. The South Carolina product is the choicest. Fine fabrics and laces and the finer grades of spool cotton are spun from the long, silky fiber of sea-island cotton.

Though the American South is the king of cotton-growing districts, about 300,000 bales of foreign cotton are imported yearly, to offset large exports. Of the foreign product, that from Egypt is the most important. Egyptian cotton is a variety of sea-island, but is less fine than the American product. Its fiber, which has an average length of 1.31 inches, is especially adapted to the manufacture of goods having a smooth finish and silky luster, and it takes the dye admirably. Its tawny color, however, is utilized in the manufacture of goods that require no dye, such as lace curtains of the natural *écru* shade. The English people are working very hard to develop Egyptian cotton fields. Attempts are now being made to introduce Egyptian cotton into the irrigated districts of Arizona and into the Imperial Valley of California, but thus far they are without encouraging returns.

Peruvian cotton, known commercially as Rough Peruvian, is reddish in color, and its fiber is rough and hairy, like that of wool. It is mixed with wool in making cloth and hats, and is also used in the manufacture of underwear and stockings. The United States imports about 30,000 bales of this variety each year.

Upland cotton comprises about two thirds of the world's supply. It is the best known of all varieties, and the cheapest, and as an economic factor is of supreme importance. Its fibers are short, not usually exceeding .93 of an inch; the stalk grows to a height of three or four feet.

As this variety is the typical product of the "land of cotton," it is the one described in the following paragraphs.

In a Cotton Field of the South. At cotton-picking time the fields present a bright array of green and white, and from a distance the stalks look as if they were crowned with snowballs. These little balls of white are the precious store of the fruiting pod, or boll, and the fruit of the planter's labor that began months before. Late in the winter or early in the spring the cotton planter starts the plows to work in order to make the soil soft, fine, and mellow. Then the ground is laid off in rows three to four feet in width, and made ready for the sowing.

Usually the seeds are dropped into a long, straight furrow made with a small plow. On the large plantations an improved cotton planter is used. This opens the furrow and sows and covers the seed, and as it is drawn by a mule or horse, like a plow, it requires the services of only one man, who can plant about eight acres a day. The date on which the preparation of the soil begins varies from January 15 in southern Texas to March 5 in the Carolinas; sowing usually begins from March 10 to April 15 and lasts until the middle of May.

About ten days or two weeks after the seeds are planted, the little shoots push their way out of the soil. These must be carefully cultivated, for cotton will not grow well if it is too crowded, or if weeds are allowed to intrude. Therefore, the stalks are frequently hoed, and they are thinned out until they stand about a foot apart in the rows, with one stalk to a hill. Soon the plants put forth green leaves that look very much like those of the maple tree. Little buds, too, make their appearance, which, from their peculiar shape, are known as squares.

When the plant is perhaps a foot high, the squares open and disclose beautiful white blossoms, which turn to a delicate shade of pink on the second morning, because of the sun's rays. The third day they grow still rosier in color, and usually fall to the ground before night, leaving behind on the stalk a tiny green boll. Sometimes, when cultivation is neglected or weather conditions are unfavorable, the blossoms carry the bolls with them when they fall, and with them too, are carried the hopes of the planter.

At the end of six or eight weeks the bolls are about the size of a hen's egg, and then as if bursting with pride at their store of rich, white lint, they crack open, splitting into three parts and announcing that picking time is at hand.

This period lasts many weeks, because not all the bolls ripen at the same time, and the pickers, therefore, make several rounds of the fields. Far to the south, the picking begins in July; it starts a little later farther north, and in the Carolinas is not completed until nearly Christmas. The white fleece pulled from the bolls is gathered into baskets or bags which hang from the shoulders of the workers, and later is loaded on huge wagons to be carried to the establishment where it is made ready for the manufacturer.

Cotton picking is still done almost entirely by hand, as in the days before the Civil War. Hand work is, however, expensive, the prices of labor ranging from forty cents to one dollar per hundred pounds. Experiments are now being made with a cotton-picking machine which will greatly lessen the expense for the larger planters if it can be made to operate successfully on a large scale, as now seems certain. Improved methods of fertilizing the soil

and of cultivating and handling the crop have been worked out by the agricultural experiment stations of the southern states, from which the planter may always obtain valuable information.

From the Cotton Field to the Market. The transformation of the fleecy white mass gathered from the bolls into the finished cotton fabric involves many operations. The lint which is dropped into the pickers' baskets has clinging tightly to its fibers numerous little hard seeds, all of which must be removed. The process of freeing the lint of seeds is known as ginning, and the machines, cotton gins. The public ginning establishments near the cotton plantations are operated by steam power, and some of them are equipped with four gins of seventy saws each, which clean from 2000 to 3000 pounds of cotton a day.

In the Ginning House. The wagons laden with the cotton from the plantations stop under a flexible pipe extending out from the mill. The lint is sucked up into the pipe by machinery and carried through fans which free it of dust and other impurities. It is then dropped into a gin, and after the seeds are removed the fleece is carried by machinery into great presses, where it is made into bales. The bales are wrapped in bagging and bound with iron bands, ready to be sent to the cotton mills. An American bale for the local trade is usually about four feet high, four feet wide, and five or six feet long, and weighs 500 pounds. The bales shipped long distances are compressed again and are much smaller. A bale of cotton nets the planter from seventy-five to one hundred dollars, in normal times.

In the Cotton Mill. When the cotton arrives at the factory, it is run through various machines which free it of dirt and form it into a lap or roll. It is then passed

through rollers covered with steel wire points, a process which makes the fibers lie in straight, parallel rows, except as they curl or twist about other fibers. The curls and twists are straightened out, and the fibers are then twisted and wound on bobbins of decreasing size, until the strands are fine enough to be spun into thread or yarn. When the product is ready for the spinning machine, the thread or yarn is taken to the looms to be made into cloth.

Muslin, silesia, cheesecloth, cambric, duck, and canton flannel are some of the fabrics woven from cotton yarns. Plain cotton goods with printed designs are known as calico, and gingham is a fabric woven of cotton threads of different colors. In this process the fibers shrink a little and take the dye more readily, while the mercerized fabric acquires a glossy appearance like that of silk.

The By-products of Cotton. Both the seeds and stalks of the cotton plant are utilized. In the process of ginning, short, fine pieces of lint, called linters, cling to the seeds. These are used in making low-grade yarns, mattresses, comforters, cushion pads, and upholstering. Mixed with wool, linters enter into the manufacture of hats, and they are also utilized in making writing paper and guncotton.

The hulls of the seeds, which are cut away from the kernels by machinery, are used in large quantities as a food for stock. The oil pressed out of the kernels has various uses. The better grade is used in making oleomargarine, cottolene, and salad oil. Large quantities of the American product are shipped to Holland, where the oil is utilized in making imitation butter. The Italians, after putting it through various treatments, use it as olive oil; for several years they shipped it back to America as pure olive oil, and it was a long time before the deception was known.

In France inferior grades are converted into soap. Cotton-seed oil is also employed in packing sardines, and it serves as a substitute for linseed oil in paints. Miners value it as a fuel for their lamps, and druggists use it in the manufacture of medicine.

Another by-product is cottonseed meal, obtained by grinding the hard, dry cake left after the oil has been pressed out of the seeds. When sifted like flour, it is an excellent stock food, and when mixed with acid phosphate it becomes a valuable fertilizer.

The cotton stalks are now being put to numerous uses. Cut up and worked into the soil, they are valuable as fertilizer. Pulp made from them is coming into extensive use in paper making, for paper manufactured from cotton pulp is much stronger in proportion to thickness and weight than that produced from wood pulp. The latter, also, is more expensive than cotton pulp, and is more difficult to obtain because of the diminishing timber supply.

Cotton stalk fibers have also been found practicable for the manufacture of guncotton. Cotton pulp which has been dissolved in amyl acetate is used in making artificial silk, the substance being spun into threads and the threads woven into fabrics. Numerous chemicals also are produced from cotton pulp, among which are pyroxylene, alcohol, and acetone. What remains from the stalk after the fiber has been removed can be prepared as a food for stock, and umbrella handles are now being made out of the tougher portions.

The Enemies of Cotton. Of several insect pests that damage the cotton plant, the boll weevil is the most malignant. This is a small, gray beetle which attacks the growing bolls and renders their contents useless. The cotton-leaf

worm, another pest, is the caterpillar of a gray moth. These caterpillars injure the plants by stripping them of their leaves, thereby depriving them of one of their chief sources of nourishment. The United States Department of Agriculture has made an exhaustive study of the insect enemies of cotton, and bulletins containing the results of their investigations may be obtained on application. The caterpillars may be killed by spraying the plants in July and August with poisons containing arsenic, or by sprinkling them with Paris green.

Other enemies of cotton are the diseases caused by certain flowerless plants known as fungi. Important among these diseases is wilt, produced by a fungus that enters the roots of the plant through the soil, clogging its cells and causing its leaves to droop and die. No method of curing this disease is known, and it is best fought by destroying infected plants and by means of crop rotation. Extreme dry or wet weather, or poor soil, may cause the drying up or shedding of the bolls by interfering with the supply of nourishment furnished the plant through its roots.

One authority makes the statement that the cotton plant has more to fear from ignorance than from all enemies combined. The more enlightened the planter becomes in matters pertaining to the preparation of the soil and the care of the plants, the better equipped will he be to combat the enemies of the crop.

Some Cotton Figures. The southern states of America furnish the nations of the world with the bulk of the raw cotton used by their manufacturers.

The cotton mills of the United States consume each year about 5,000,000 bales. Exportations to Europe were very seriously affected by the outbreak of the World War in

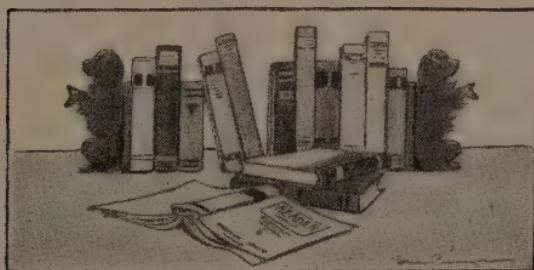
1914; but under normal conditions Great Britain imports 4,000,000 bales of American cotton a year; Germany and France are next in order, with averages of 2,800,000 and 1,150,000. Italy purchases over 560,000; Spain, about 315,000; and Belgium about 222,000. Over 400,000 bales are sent each year to Japan, and about 170,000 to Canada.

Great Britain became the leading cotton-manufacturing country of the world in the eighteenth century, and continues to hold that position. The industry is centered in Lancashire. Germany, Russia, Japan, India, France, Austria, Italy, Belgium, Spain, Canada, the Netherlands, and Switzerland are the countries next in order. After the outbreak of the World War, Japan and Spain greatly increased their output.

The total number of spindles in the United States is over 35,000,000, and more than a third of these are in Massachusetts. South Carolina ranks second, North Carolina third; and Rhode Island, Georgia, New Hampshire, Connecticut, and Maine have each over 1,000,000 spindles.

— From *The World Book*.¹

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27. CHOOSING THE RIGHT WORD

The ability to guess the meaning of a word from its use in a sentence is a help in reading. Choose appropriate words to fill the blank spaces, and write them on a piece of paper opposite the proper numbers. When your teacher tells you what words the author used, it will be interesting to decide whether yours are just as good or better.

RIP VAN WINKLE, however, was one of those happy (1), of foolish, well-oiled dispositions, who take the world easy, eat white bread or brown, whichever can be got with the least thought or (2), and would rather starve on a penny than work for a pound. If left to himself, he would have whistled life away in perfect (3); but his wife kept continually (4) in his ears about his (5), his carelessness, and the ruin he was bringing to his family. Morning, noon, and night her tongue was (6) going, and everything he said or did was sure to produce a torrent of household eloquence. Rip had but one way of replying to all (7) of the kind, and that, by frequent use, had grown into a habit. He shrugged his shoulders, shook his head, cast up his eyes, but said nothing. This, however, always provoked a fresh (8) from his wife; so that he was fain to draw off his forces, and take to the outside of the house — the only side which, in truth, belongs to a (9) husband.

— From *Rip Van Winkle*, by Washington Irving.

28. THE ARREST OF LIEUTENANT GOLIGHTLY

You will enjoy reading this story by Rudyard Kipling for the fun of finding out what happened to Golightly. Read it as fast as you can, but remember that the most important purpose of reading is that of getting the thought.

IF there was one thing on which Golightly prided himself more than another, it was looking like "an Officer and a Gentleman." He said it was for the honor of the Service that he had attired himself so elaborately; but those who knew him best said that it was just personal vanity. There was no harm about Golightly — not an ounce. He recognized a horse when he saw one, and could do more than fill a saddle. He played a very fair game at billiards, and was a sound man at the whist table. Every one liked him; and nobody ever dreamed of seeing him handcuffed on a station platform as a deserter. But this sad thing happened.

He was going down from Dalhousie, at the end of his leave — riding down. He had cut his leave as fine as he dared, and wanted to come down in a hurry.

It was fairly warm at Dalhousie, and, knowing what to expect below, he descended in a new khaki suit — tight fitting — of a delicate olive-green, a peacock-blue tie, white collar, and a snowy white helmet. He prided himself on looking neat even when he was riding post. He did look neat, and he was so deeply concerned about his appearance before he started that he quite forgot to take anything but some small change with him. He left all his notes at the hotel. His servants had gone down the road

before him, to be ready at Pathankote with a change of gear. That was what he called traveling in "light marching-order." He was proud of his faculty of organization.

Twenty-two miles out of Dalhousie it began to rain — not a mere hill-shower but a good warm downpour. Golightly hustled on, wishing that he had brought an umbrella. The dust on the roads turned into mud, and the pony mired a good deal. So did Golightly's khaki gaiters. But he kept on steadily and tried to think how pleasant the rain was.

His next pony was rather a brute at starting, and Golightly's hands being slippery with the rain, contrived to get rid of Golightly at a corner. He chased the animal, caught it, and went ahead briskly. The spill had not improved his clothes or his temper, and he had lost one spur. He kept the other one employed. By the time that stage was ended, the pony had had as much exercise as he wanted, and, in spite of the rain, Golightly was sweating freely. At the end of another miserable half-hour, Golightly found the world disappear before his eyes in clammy pulp. The rain had turned the pith of his huge and snowy helmet into an evil-smelling dough, and it had closed on his head like a half-opened mushroom. Also the green lining was beginning to run.

He tore off and squeezed up as much of the brim as was in his eyes and plowed on. The back of the helmet was flapping on his neck and the sides stuck to his ears, but the leather band and green lining kept things roughly together, so that the hat did not actually melt away where it flapped.

Presently, the pulp and the green stuff made a sort of slimy mildew which ran over Golightly in several directions — down his back and bosom for choice. The khaki color

ran too — it was really shockingly bad dye — and sections of Golightly were brown, and patches were violet, and contours were ochre, and streaks were ruddy red, and blotches were nearly white, according to the nature and peculiarities of the dye. When he took out his handkerchief to wipe his face and the green of the hat-lining and the purple stuff that had soaked through on to his neck from the tie became thoroughly mixed, the effect was amazing.

Near Dhar the rain stopped and the evening sun came out and dried him up slightly. It fixed the colors, too. Three miles from Pathankote the last pony fell dead lame, and Golightly was forced to walk. He pushed on into Pathankote to find his servants. He did not know then that his *khitmatgar* had stopped by the roadside to get drunk, and would come on the next day, saying that he had sprained his ankle. When he got into Pathankote, he couldn't find his servants, his boots were stiff and ropy with mud, and there were large quantities of dirt about his body. The blue tie had run as much as the khaki. So he took it off with the collar and threw it away.

He went to the Station-Master to negotiate for a first-class ticket to Khasa, where he was stationed. The Booking-Clerk said something to the Station-Master, the Station-Master said something to the Telegraph Clerk, and the three looked at him with curiosity. They asked him to wait for half-an-hour, while they telegraphed to Umritsar for authority. So he waited and four constables came and grouped themselves picturesquely round him. Just as he was preparing to ask them to go away, the Station-Master said that he would give the Sahib a ticket to Umritsar, if the Sahib would kindly come inside the booking-

office. Golightly stepped inside, and the next thing he knew was that a constable was attached to each of his legs and arms, while the Station-Master was trying to cram a mail-bag over his head.

There was a very fair scuffle all round the booking-office, and Golightly received a nasty cut over his eye through falling against a table. But the constables were too much for him, and they and the Station-Master handcuffed him securely. As soon as the mail-bag was slipped, he began expressing his opinions, and the head-constable said: "Without doubt this is the soldier-Englishman we required. Listen to the abuse!" Then Golightly asked the Station-Master what the proceeding meant. The Station-Master told him he was "Private John Binkle of the —— Regiment, 5 ft. 9 in., fair hair, gray eyes, and a dissipated appearance, no marks on the body," who had deserted a fortnight ago. Golightly began explaining at great length: and the more he explained, the less the Station-Master believed him. He said that no Lieutenant could look such a ruffian as did Golightly, and that his instructions were to send his capture under proper escort to Umritsar. Golightly was feeling very damp and uncomfortable, and the language he used was not fit for publication. The four constables saw him safe to Umritsar in an "intermediate" compartment, and he spent the four-hour journey in abusing them as fluently as his knowledge of the vernaculars allowed.

At Umritsar he was bundled out on the platform into the arms of a Corporal and two men of the —— Regiment. Golightly drew himself up and tried to carry off matters jauntily. He did not feel too jaunty in handcuffs, with four constables behind him, and the blood from the cut on his forehead stiffening on his left cheek. The Corporal

was not jocular either. Golightly got as far as:—“This is a very absurd mistake, my men,” when the Corporal told him to “stow his lip” and come along. He desired to stop and explain. He explained very well indeed, until the Corporal cut in with:—“*You* a orficer! It’s the like o’ *you* as brings disgrace on the likes of *us*. Bloomin’ fine orficer you are! I know your regiment. The Rogue’s March is the quickstep where you come from. You’re a black shame to the Service.”

Golightly kept his temper, and began explaining all over again from the beginning. Then he was marched out of the rain into the refreshment-room and told not to make a qualified fool of himself. The men were going to run him up to Fort Govindghar. And “running up” is a performance almost as undignified as the Frog March.

Golightly was nearly hysterical with rage and the chill and the mistake and the handcuffs and the headache that the cut on his forehead had given him. He really laid himself out to express what was in his mind. When he had quite finished and his throat was feeling dry, one of the men said:—“I’ve ‘eard a few beggars in the click blind, stiff, and crack on a bit; but I’ve never ‘eard any one to touch this ’ere ‘orficer.’” They were not angry with him. They rather admired him. They asked him to tell them all about the adventures of Private John Binkle while he was loose on the countryside; and that made Golightly wilder than ever. If he had kept his wits about him, he would have kept quiet until an officer came; but he attempted to run.

Now the butt of a Martini in the small of your back hurts a great deal, and rotten, rain-soaked khaki tears easily when two men are jerking at your collar.

Golightly rose from the floor feeling very sick and giddy, with his shirt ripped open all down his breast and nearly all down his back. He yielded to his luck, and at that point the down-train from Lahore came in carrying one of Golightly's Majors.

This is the Major's evidence in full : —

“There was the sound of a scuffle in the second-class refreshment-room, so I went in and saw the most villainous loafer that I ever set eyes on. His boots and breeches were plastered with mud and beer-stains. He wore a muddy-white sort of thing on his head, and it hung down in slips on his shoulders, which were a good deal scratched. He was half in and half out of a shirt as nearly in two pieces as it could be, and he was begging the guard to look at the name on the tail of it. As he had rucked the shirt all over his head, I couldn't at first see who he was, but I fancied that he was a man in the first stage of D. T. from the way he swore while he wrestled with his rags. When he turned round, and I had made allowances for a lump as big as a pork-pie over one eye, and some green war-paint on the face, and some violet stripes round the neck, I saw that it was Golightly. He was very glad to see me,” said the Major, “and he hoped I would not tell the Mess about it. I didn't, but you can, if you like, now that Golightly has gone Home.”

Golightly spent the greater part of that summer in trying to get the Corporal and the two soldiers tried by Court-Martial for arresting an “officer and a gentleman.” They were, of course, very sorry for their error. But the tale leaked into the regimental canteen, and thence ran about the Province.

— Rudyard Kipling (Abridged).



29. WHO PAYS THE TAXES, AND WHY

Every good citizen — we are all citizens — should be able to answer the following questions about taxes. This selection will enable you to do so. Read it very carefully.

1. If your father does not own a house, but rents one, does he pay taxes?
2. Explain how you are paying taxes when you buy a sweater at a store.
3. Is there anybody who escapes paying taxes in some form or other?
4. Why should a good citizen be willing to pay his share of the taxes?

IN America all good citizens believe in the "square deal" and in dealing squarely. If all share in the government of the community and in the benefits that are provided by it, all should share in meeting the expenses.

Some people think that only persons who own property pay taxes, but they are mistaken. Where does the man who owns a number of houses or stores get the money to pay his taxes? You answer that he rents the houses or stores to other people. If he is a good business man,

the rent will be high enough to cover taxes, repairs, and a fair rate of interest on his investment. Thus you see that the person who pays rent for a house or a store is really paying taxes.

Suppose you go into one of these stores to buy a pair of shoes. The merchant must include in the price of the shoes something for rent and probably something for the tax on his stock of goods. So every time you buy a pair of shoes you are indirectly paying taxes. And what about the person who boards? Here again, the money paid for the room rent goes toward paying the house rent and indirectly pays part of the taxes on the house.

When taxes are increased, owners of stores and houses demand more rent. This in turn means that we all have to pay more for articles we buy in the stores and for the houses or rooms that we rent. Thus all the people have a share in paying for good roads, schools, parks, fire and police protection, street cleaning and lighting, and other public conveniences.

When you hear any one say, "Never mind, the property owners will have to pay for it," or "The city pays for it," you will understand that such statements are not true. You have learned that everybody helps to pay for it in one way or another. If all citizens could be made to understand this, public property would be better cared for and the people would take a greater interest in the way in which public money is spent. You can easily see that when a person tries to "cheat the city" he is really cheating himself and his neighbors.

People would not grumble so much about paying their taxes, or talk as if they were giving the community a present, if they stopped to think what paying taxes

really means. They are simply paying their share toward the cost of benefits that they have been receiving every day. Helping to pay the community's bills will increase the taxpayer's self-respect if he realizes that by so doing he is not accepting benefits for which he is paying nothing.

One of the fine things about our government is the fact that it gives a vote to the poor man as well as to the rich man and makes each share in the expenses according to his means. A person is indeed unpatriotic who tries to dodge the payment of taxes justly assessed. The work of the community, which means much to us, cannot be properly carried on without the help of each citizen.

If taxes are not paid by a specified date, interest is added for a reasonable time. If they still remain unpaid after this time has expired, the authorities have the right to order the property sold at a public sale. The money that remains after the taxes and cost of the sale are paid will be given to the original owner.

— From *Everyday Civics*, by Charles Edgar Finch.¹

¹ Copyright, 1921, 1925, by American Book Company.



30. THE FIRST DESCRIPTION OF NEW ENGLAND

It is important to learn to read rapidly, but it is more important to learn to read well. A pupil, however, who can read both rapidly and well has the most important tool that the school can give.

Wait for your teacher's suggestions before you begin to read.

IT was through Captain John Smith, the hero of Jamestown, that the English people came to know about the country which he named New England. He gave them their first real knowledge of this strange new land. He had carefully explored the coast in the summer of 1614 and made a map of it, sailing in an open boat from the rocky shores of the Penobscot River in Maine to the sand hills of Cape Cod.

Captain Smith was the first one who saw the great beauty of the place where Boston now stands; he called it "the Paradise of those parts." No one before him had had any idea that this new world was more than a narrow strip of land lying along the ocean, but he saw that it was a country stretching back for "no one can guess how many thousand miles." Other visitors had thought New England was an island, but Captain Smith said it was no island but a part of the mainland which he with the others thought stretched away westward to India.

He was so interested and pleased with this country that he returned to England to get money and people for planting a colony there. He succeeded in interesting a trading

company in Plymouth, England, in his scheme, and in 1615 again sailed west for the New World. Backed by this company, it was his plan to found a colony in New England, but unfortunately he was taken prisoner by French pirates. While cruising about with them as their captive, he wrote a book called *A Description of New England*, for Captain Smith was not a man to waste any time.

Finally he succeeded in getting back to England and there he published his book, with a map illustrating it. He went about the country selling the books and trying to interest people in founding a colony, but he did not succeed in doing so. He was given the title of "Admiral of New England," and this was about all he ever received for his trouble and hard work.

But his book was read by many people, and through it they became acquainted with the new land. He told them that this was a great country; that it had wonderful fisheries which alone would support a colony and bring more profit to England than any amount of gold hunting. He told them of the great possibilities in the way of fur trading; and he said that the soil was fertile and the climate just suited to Englishmen. He drew so pleasing a picture that many men and women became interested and began to wonder if they could not make for themselves a happier home over there in the New World than they had in England. Captain Smith was wise enough to know that people would not go three thousand miles across the sea to make new homes for pleasure. So he showed in this book how the colonists and the company backing them could make money — "for," said he, "I am not so simple as to think that any other motive than wealth will ever erect there a commonwealth."

31. GOOD ROADS

Almost everybody now rides in automobiles and is interested in good roads. The following are some of the questions you might like to have answered about roads:

1. What kind of roads did our grandfathers have?
2. Who pays for building our new roads?
3. Why are some of our roads called "macadamized"?
4. Did the ancient peoples have good roads?
5. What is the Lincoln Highway?

In order to find answers to such questions, you would do well to consult a modern encyclopedia. The following article is taken from such an encyclopedia. Select one or more of these questions in which you are most interested and see if you can find the answers. You will probably skim quickly over the parts that do not tell you what you are looking for, but when you come to what you are interested in, you will read more carefully.

In using an encyclopedia you will not always find all you are looking for in one article, and may need to look for it in some other article under a different heading. You will find it helpful to consult the index or the table of contents.

ROADS have been called a symbol by which the progress of a community can be measured. If people have no roads, they are savages; and if their roads are poor and little used, it is a sign that their civilization is stagnant. For "if there is any motion in society, the road, which is the symbol of motion, will indicate the fact." Without them commerce is impossible, and large cities cannot exist; communities are isolated, and interchange of ideas cannot take place. Roads are, indeed, not only the sign of civilization — they are one of the chief means for its advancement.

The importance of roads to the welfare of nations was not unknown to the ancients. The streets of the city of Babylon were paved as early as 2000 B.C., and Herodotus speaks of a magnificent Egyptian road which was built to assist in the construction of the Great Pyramid. The Peruvians, Chinese, and Carthaginians were also great road builders; but beyond question the greatest road builders of the ancient world were the Romans, whose stone-paved highways are the most solid structures in the way of roads found in any age. "All roads lead to Rome" was then literally true, for that city was the center of a network of wonderful highways reaching from the remote east to the farthest west, and even penetrating England. Many of them still remain as great monuments to the energy and skill of their builders, forming the foundation of modern roads and in some instances constituting the road surface now used.

In the Middle Ages the magnificent Roman roads were allowed to decay, and for over a thousand years none were built to take their place. The medieval traveler had to force his way through deep and miry lanes at a pace of two or three miles an hour, in constant fear of being stuck fast in some quagmire or overturned. Even in the time of Queen Elizabeth the only safe means of travel was by horseback or on foot. When stage-coaches were finally introduced (about 1659), Macaulay tells us that "it happened almost every day that coaches were stuck fast, until a team of cattle could be procured from some neighboring farm, to tug them out of the slough." As late as 1770, Arthur Young complained of a Lancashire road that its ruts actually measured four feet deep, and of the people who ride over them "a thousand to one break their necks or their

limbs by overthrows or breakings down. The only mending it receives is tumbling in some loose stones, which serves no purpose than jolting the carriage in a most intolerable manner." Small wonder that many people lived and died without traveling twenty miles from their place of birth!

In America, Indian trails were for a long time the only means of travel except by water. As the population pushed inland, these trails were generally widened into roads for the use of wagons, but they long remained in an intolerable condition. One of the most popular means of improving them was to place trunks of trees across the mud roads and leave them to settle there, producing what was called a "corduroy road." Dickens describes vividly a journey over one of these in his *American Notes* (1842): "At one time we were all flung together in a heap at the bottom of the coach; at another we were crushing our heads against the roof. Now one side was deep in the mire, and we were holding on to the other. The very slightest of the jolts with which the ponderous carriage fell from log to log was enough, it seemed, to dislocate all the bones in the human body." As trade increased, an insistent demand was made for better roads, and the toll-road era began. Although these private "turnpikes," which were maintained by tolls collected at certain sections on the road, were never popular with the public, they increased very rapidly. Before the beginning of the nineteenth century, England had 30,000 miles of them, and after their introduction into America in 1790 the people invested in the stock of the turnpike companies a sum almost equal to the country's debt at the close of the Revolution. Since timber was plentiful in America, plank and corduroy roads were those most often built. Little

improvement was effected in road building until the nineteenth century, when two skilled engineers, Thomas Telford and John L. MacAdam, introduced scientific road-building in England. The latter's name is commemorated in our macadamized roads, which, as Dickens said, have benefited "our shops, our horses' legs, our boots, and our hearts."

Road-building remained a purely local and usually private affair in America until 1806, when Congress began the famous National Pike or Cumberland Road to furnish better communication between the East and West. At a cost of \$7,000,000, a great highway 800 miles in length was gradually constructed from Cumberland, in Maryland, to Indianapolis, in Indiana, beyond which it was only partially completed. Thousands of prairie schooners followed it into the West, and it was one of the most important steps in national expansion. But with the coming of the railroads, Federal as well as state aid in road-building ceased for nearly half a century, because it was thought that roads would never be used for any but local traffic.

It remained for the automobile to give the next great impetus to the cause of good roads. Tourists who were adventurous enough to attempt to cross the continent a few years ago encountered meandering old trails which, owing to long years of disuse, were practically impassable. Time had all but obliterated the historic highways over which moved the commerce of the great West before the coming of the transcontinental railroads. Farming communities were indifferent or even hostile to road-building and its expenses. But with the advent of the automobile, the motor truck as well as the pleasure car, city and country alike awoke to the importance of good roads. Many of the old trails came again into use as part of the Old Trails

Road, which comprises the National Road, the Boone Lick Trail, the Santa Fe Trail, which was the old route to the Southwest and Mexico, and the King's Highway, or Camino Real, which the Franciscan fathers followed in the early days in their journeys from mission to mission in California. The Jefferson Trail and the Mississippi Highway now span the continent from north to south in the Middle West, and the Pacific Highway connects Vancouver in British Columbia with southern California. Many of these are for the most part well marked dirt roads, which can be traversed with comfort only in dry weather. But there are also the Pikes Peak Highway, one of the highest and most wonderful of the earth's roads, which climbs the north side of that mountain; and the Lincoln and the Dixie highways, which contain stretches of admirable hard-surfaced road.

The Lincoln Highway is the wonder-trail of America, girding the continent from sea to sea, a distance of 5000 miles. In from 20 to 30 days motorists can now travel from New York to the Golden Gate by following the gleaming red, white, and blue signs that mark the highway passing through all the varied wonders of American scenery — the picturesque Appalachian ranges, the lowlands of the Mississippi with their forests, farms, and prairies, the great American desert, and the lofty Rocky Mountains — until California is reached, the state which possesses the most magnificent roads in the Union.

The Dixie Highway, completed in 1916, links the wintry north with the eternal summer of the everglades. It is shaped like a great spoon, the handle extending from Miami, in Florida, to Chattanooga, where the road divides into two parallel lines extending north through Ohio and

Indiana and following the shores of lakes Michigan and Huron until they meet at Mackinac, Mich. Together the roads have a length of 4000 miles and traverse eight states.

The Federal Road Act, which became law in July, 1916, has resulted in great activity among the states in road-building. This act provided some \$75,000,000 of national funds for coöperation with the states in the making of rural roads, and an amendment of February, 1919, appropriated an additional \$200,000,000 for the same purpose. The states must pay at least one half of the estimated cost of production and pay for the maintenance of the roads. The state highway departments select those which are to be improved and submit them to the secretary of agriculture for his approval. The act also provides, by a special appropriation, for roads in national parks and forests.

Most states now have highway commissions, from whom maps and information about roads may be obtained upon application.

— Adapted from *Compton's Pictured Encyclopedia*.¹

¹ Reprinted by permission of F. E. Compton and Company, publishers.



32. KEEPING FIT

This selection describes another good exercise that will help to keep you fit. Review the introduction to lesson 5, page 26.

Read the directions given below very carefully and study the pictures. Practice the movements.

TO clear an obstacle or to grasp an object above one's standing reach, one resorts to jumping. This is, therefore, a natural movement, and it should be performed naturally. The first part of the movement (Fig. 1) uses the



FIG. 1



FIG. 2

muscles of the entire body, and in the second part (Fig. 2) the body is thrown into the air by the vigorous contraction of leg, back, and arm muscles. In the continuous jump, the landing position, shown in Fig. 1, serves as the start for the next jump. At first the movement should be practiced without the jump.

On the count of *One* bend the knee and hip joints and incline the body forward (Fig. 1). Swing the arms downward and backward, elevating the heels slightly. Note that the trunk is inclined and not held in an upright and unnatural position. On the count of *Two* swing arms forward and upward, and spring into the air (Fig. 2). The landing follows as a result of the movement and should assume the position shown in Fig. 1.

Before trying the jump, the movement of preparation (Fig. 1) should be practiced until the muscles are strong enough to allow you to jump without straining them.

At first, make only one jump (Fig. 2). Land with the knees bent and the heels off the ground. Secure lightness in the movement and avoid landing heavily.

After the strength of the legs has been developed, continuous jumping should be performed. Gradually increase the number of jumps from one to five or six.

— Adapted from *Personal Hygiene Applied*, by Jesse Feiring Williams.¹

¹ Reprinted by permission of W. B. Saunders Company.

33. JOAN OF ARC

Other countries have their famous heroes just as we in America have ours. Probably the one most beloved by the French is Joan of Arc. Although she lived only a short time, she did so much for France and was such a good and strong character that she is looked upon as a saint.

As you read this story of her life, try to find out why her countrymen love her so devotedly.

MORE than five hundred years ago, there was born in far-away France in the little village of Domremy a girl whom we know as Joan of Arc. She is known, also, as the Maid of Orleans, because it was through her efforts that the city of Orleans was saved from falling into the hands of the English at a time when they were about to take it from the French.

Joan was only a peasant girl — one of five children in a poor and worthy family. To her parents she seemed no different from other girls. She played with the children in the flowery meadows around Domremy or danced with them under the “Fairies’ Tree,” as they called the great beech tree which stood near the village. She helped her mother sew and spin and do the work of the house, and she learned the stories of the saints and said her prayers as all children were taught to do. And yet, although in most ways she seemed like other children, still she was different. After her tasks were done, often she would leave her playmates and go to the village church, where she would spend hours praying and gazing at pictures of the saints. She loved especially to listen to the church

bells calling the villagers to worship. As she grew older, she came to spend most of her leisure time in or near the church, and gradually almost deserted her little companions, who often laughed at her for being too religious.

France at this time was at war with England, and though the village of Domremy was not in the war district, it was greatly alarmed by stories of the defeats of the French armies and the suffering of the people. Sometimes sick or wounded soldiers passed through on their way home, and Joan listened with great pity to their tales of distress.

The condition of France at this time was truly sad. The war had been going against her for a long time; many of the cities, including Paris, were held by the English; the king was weak and thought only of his own safety and pleasures, while the people over the whole country were poor and miserable. The stories of all this distress made Joan very unhappy, and as she grew older she could think of little else. She prayed night and day for her unhappy country and begged God and the saints to send help to it.

There was a common belief at this time that France would be saved by a woman, and little by little Joan came to believe that she was the woman destined by God for the great work.

When she was thirteen years old, the strange visions and voices which henceforth were to govern her life began coming to her. One summer day at noon, while in her father's garden, she saw a bright light come suddenly out from the church and a voice called to her to be a good girl. From this time on, the voices came often, and forms of saints and angels appeared to her. At first she was frightened, but gradually she came to love them and would ask them to tell her what she ought to do.

Four years passed and Joan grew to be a tall, strong young woman with a bright, clear mind. She was kind to everything, and every one called her a good girl. She seemed happy at her work and at her play, and not even her father or mother knew anything of the visions and voices which made up such a part of the girl's life, for Joan had told no one of them.

At length as the troubles in the country grew worse, a voice called to Joan that the time had come for her to go out and save her country, and told her just what she was to do. She was to go to the governor of the district, tell him that God had sent her to help the king and the country, and ask him to send her to the king. Joan was much frightened now and did not know how to act. She asked the voice how could she, a poor girl, leave her home and her parents? How could she, a mere girl, go and live among rough men on the battle-field? How could she be of use there when she knew not how to ride or fight? But the voice continued to tell her to go, and finally she made ready to do so.

To her parents she said nothing of her plans, for she felt sure that they would forbid her to go; but she confided in an uncle who agreed to help her, and who took her to his home, which was not far from the town in which the governor lived.

She sent a message to the governor asking him to receive her, as she had something of great importance to say to him, but it was only after much trouble and many delays that he finally consented. She gave him the message as directed by the voice. She was sent by God to help France and the king; would he send her at once to the king? But he only laughed at the young peasant girl in her

coarse red dress and advised her to go back home where she belonged. But Joan would not give up. Again and again she begged him to let her go, telling him that the king needed her and she must go to him though she went on her knees.

People of the neighborhood began to hear of Joan and her mission; and, impressed by her honesty and sincerity, many believed in her and added their entreaties to hers that the governor should help her. Finally he began to think that possibly he might be mistaken; that there might be some truth in what the girl said. He had respect for some of the people who were urging her cause. Anyway it could do no harm. He decided to send her. He gave her a sword and six men as an escort and in God's name bade her go. Some friends gave her a horse and a soldier's dress, for as she was to travel with soldiers she had to dress as they did.

Although her friends were greatly worried, as the entire journey was full of dangers, she set out with a brave heart, saying that God and "her little brothers of Paradise would take care of her." She traveled through a country held by the enemy, forded deep and rapid streams, and passed through other dangers from which brave men shrank, but at the end of eleven days she reached her destination and at once asked to see the king.

But the king, Charles VII, had no desire to see her. He had no faith in her or her voices. If his armies could not save France, how could this peasant maid of seventeen years, who knew nothing of war, do it? She should be at home with her mother, he said, instead of traveling about with soldiers.

But she would not go away, and after three days, on the advice of some of his friends, he consented to receive her.

She found him in the midst of a crowd of richly dressed nobles, but she seemed not at all embarrassed by the grand company with which the king had purposely surrounded himself. She went at once to the king and knelt at his feet. He tried to deceive her by pointing to a man near by and saying, "That is the king, not I."

But she could not be deceived. She replied, "In God's name, Gracious Prince, you are he, and none other; and I am Joan the Maid, sent by God to save France." Then she asked for troops that she might begin at once to drive the enemy from Orleans.

The English had surrounded this city. To drive them away had until this time been too much for the French. Their army was badly led; they had been beaten so often that they were in deadly fear, and soon, they believed, the city must fall into the enemy's hands.

The voices told Joan that she could drive away the enemy and save the city. This was the first work she was to do. Then she was to lead the king to the city of Reims to be crowned; after that she was to free all France from the enemy. She knew what work she was to do and was most anxious to begin it.

But she encountered opposition and was delayed again and again.

Men of all kinds were sent to question her and try her in every way possible, but she answered with such sincerity and honesty that many of her questioners became her supporters. Wise and good women were sent to find out what kind of a girl she was who claimed so much for herself, but they saw no fault in her. "The warrior-maiden was a mere girl, simple and speaking little. Her goodness and innocence moved them to tears."

After months of delay King Charles consented that Joan should lead an army to save Orleans from the English. She was given a suit of white armor, a white horse, and a banner embroidered with lilies. The king had no faith in her, but urged by some of the highest men in France, he decided to let her try. She might be a witch; she might be a saint; no one could know until she was allowed to try.

At last the march to Orleans began and in spite of the hindrances placed in her way by the captains, the city at last was reached, and entered.

The people of the city rushed out to meet her and greeted her as if she were an angel. She had come to them in their distress and wherever she went they followed her with prayers and thanks.

The first attack Joan ordered upon the English was a great success, although she was wounded and obliged for a time to retire from the field. The soldiers were now so encouraged that in one month, in spite of the weakness and cowardice of her captains and the hindrances which they daily put in Joan's way, the English besiegers were all killed or driven off, and the city at last was free.

Naturally the people looked upon Joan as their savior, and showed her in every way their gratitude. They crowded about her to touch her hand or her garments, and even kissed the hoofprints of her horse. But she always told them that she was no saint, but only a poor girl doing the work of her Lord and would ask them in God's name to let her go on.

She now left Orleans and set out to see the king, as the voices told her that her next work was to persuade him to go with her to Reims to be crowned.

King Charles came out to meet her, and when she knelt

before him, he took off his cap to her as to a queen. He thanked her again and again and offered her money and honors. But she wanted none of them. She asked but one thing of him: make ready at once and go to Reims while the English were weakened and disheartened. She would conduct him there safely, but let him come at once, for she had much to do and little time in which to do it. "Make use of me," she pleaded, "for I shall last only a year." Whether she was growing tired or whether she had some warning of the misfortune that was to come upon her, we do not know; but she was always talking of her time being short and urging the king and his officers to make haste.

But no haste was made. Reims and the country around it were held by the English, and not until they were driven out and the country made safe would Charles consent to go with her.

Joan again placed herself at the head of an army and made ready to begin the work, but found herself hedged about with the same hindrances as before. With her captains it was always caution and wait. The soldiers were devoted to her and eager to do her bidding. They were tired of the delays and weakness of the leaders. They had found that when they forgot their fears and boldly attacked they could always win.

The enemy on the other hand were discouraged and frightened. They believed Joan to be a witch and often would turn and run at the mere sight of the white horse ridden by the girl in white armor. Sometimes when her soldiers were about to retreat by order of her captains, Joan would fortunately appear and turn the retreat into a victory by giving courage to her soldiers and at the same

time filling the enemy with fear. If the king and the leaders of the army could only have had faith in her, much trouble would have been saved; but in spite of all the girl had accomplished, they still did not believe in her and she was made to pass months in delays while they argued and she pleaded for action. "Gracious Prince," she said, "why will you not believe in me? I tell you God has pity on you, your kingdom and people. In God's name let us go; I shall have hard work, but my Lord will help me."

At last she was permitted to go, and in a few weeks in a truly wonderful way the road was cleared and Charles and his nobles entered the city of Reims.

It was the ancient custom in France that a king must be crowned in Reims, and Joan believed Charles to be no king until he had been crowned in that sacred city and anointed with holy oil. And at last this was done. Charles was crowned with great ceremony, Joan herself standing at his side holding her sacred banner.

Again she was offered wealth and honors, but she refused them. She wanted only to finish her work and go home. She had given a king to France, she said, and it now remained for her to give France to the king.

The English still held a large part of the country, including Paris, and her work would not be finished until the enemy was driven out and the French people were in possession of their own land.

She wanted the king and the army to hurry forward and take Paris before the English could strengthen themselves, but it was the same as before — delay and wait. Charles caught at every excuse for remaining where he was, while to Joan every day of waiting was a day of pain.

At last the march began, and Joan hoped soon to be able

to see the end of her labors and to return to the home where she so longed to be. "Would to God," she said at one time, "that I might return to my home now, and lay down my arms, and go back to serve my parents, and guard their flocks with my sister and brothers, who would be right glad to see me." But the girl was never to see her home again.

On the march to Paris the people came in crowds to see her. They were glad to see the king, but it was the girl in shining white armor with the gentle voice that they most wanted to see. They called her an angel and sang songs about her. Wherever she went, she was greeted as the savior of France and shown the utmost love and respect.

But the king and his advisers had little heart for the work. They let the English keep Paris and the northern counties; they wanted only to return to the south where they were safe and comfortable. This foolish girl had made them trouble enough. They had no more faith in her than when she had first come among them. And so they held back and delayed. Joan was growing tired. Her voices no longer came to her in clear commands of what she was to do. She was no longer always successful. The army did not obey her as in former times.

One afternoon an attack on the English failed of success, due largely to the cowardice of the French leaders. A retreat was ordered by them; Joan tried to stop it, but her army paid no attention to her. They rushed headlong in retreat to their own city. Joan helped to cover the retreat as best she could, but while she was waiting to see the last of her soldiers safe, suddenly the gates of the city were closed against her by the leaders of her own army. With only a handful of men to defend her, she was left to

the mercy of the English. But they had no mercy. Joan had been badly wounded during the afternoon, but in spite of this she fought desperately until she was overpowered by the English and dragged from her horse. They had the "witch" at last. She was worth more to them than a whole army, they said.

The unfortunate girl was now a prisoner of the English. She was put into an iron cage and chained to it. No effort whatever was made by the French to rescue her. The king for whom she had done so much did nothing for her. For many weeks she was kept in prison, chained day and night and guarded by five rude English soldiers. None of us probably can imagine what she suffered.

At length she was given a form of trial, but Joan saw from the first what the result would be. She was guilty of no crime, but everything she had done was in some way charged against her. No one came to help her. She had only the bitterest of enemies about her, but through it all she remained calm and true, trusting in her God.

The trial was long and weary. Every effort was made to force her to say something which would show her guilty in some way. But her answers were true and honest and no guilt could be found in them.

At the end she was found guilty of many pretended crimes and was condemned to be burned at the stake. At first on hearing the dreadful sentence, she cried bitterly and said, "Why will they treat me so cruelly?" But she soon became calm and met her fate bravely, declaring to the last that her voices had not deceived her, that they were from God.

34. THE TARANTULA'S BABIES

The tarantula is, as you probably know, a poisonous spider. But its life story is very interesting, and you would not find this out except by a great deal of patient search and observation in the country where it is to be found. It would take more patience than most of us have; but a Frenchman, named Fabre, has done this for us and told the story. Only part of it is here, but you may find the rest of it in a book called *Insect Adventures*, along with many other stories quite as wonderful. We hardly know whether to wonder more at the story or at the patience and skill he must have had to find it out. When you read, you should think not only of the queer babies but of what Fabre must have done to know all this about them. Perhaps you can find at least part of a story like it in a spider's web of your own.

THE tarantula lays her eggs in a kind of a cocoon which she takes about with her everywhere until the eggs hatch three or four weeks later. As the little tarantulas, to the number of about two hundred, come out of the silken covering they climb on the mother's back and there sit motionless, jammed close together, forming a kind of bark of mingled legs and bodies. The mother cannot be recognized under this live cloak. The little ones are very good. Not one stirs, not one tries to get more room at his neighbor's expense. They allow themselves to be carted about like the young of the opossum. Whether the mother sits at the bottom of her den or comes to the opening, in mild weather, to bask in the sun, she never throws off her greatcoat of youngsters until the spring season comes.

If, in the middle of winter, I happen to ransack the spider's dwelling, I always find her at home, still carrying her family. This kind of upbringing of the youngsters

on her back lasts five or six months at least, with no interruption. The celebrated American carrier, the opossum, lets her children go after a few weeks of carting.

What do the little ones eat while on their mother's back? Nothing, so far as I know. I do not see them grow larger. I find them, when they finally leave to shift for themselves, no larger than they were when they left the bag.

During all this time, the mother herself eats very little. In order to keep herself in condition, however, she must sometimes break her fast. She then comes out in search of prey without, of course, discarding her live cloak of youngsters. The expedition has its dangers. The little spiders may be brushed off by a blade of grass. What becomes of them when they fall? Does the mother give them a thought? Does she help them to regain their places on her back? Not at all. The affection of a spider's heart, divided among so many, can spare but a little for each. She waits quietly for the victims of the mishap to get out of their own difficulty. This they do, and very nimbly too.

I sweep the whole family from the back of one of my spiders with a hair pencil. There is no search on the part of the mother. After trotting about a little on the sand, the dislodged little ones find, these here, these there, one or another of the mother's legs, spread wide in a circle. By means of these climbing poles they swarm to the top, and soon the group on the mother's back is as it was before. Not one of the lot is missing. All know their trade as acrobats to perfection.

As March comes to an end, the mother tarantula is outside her burrow. It is time for the children to leave her. She lets them do as they please, seeming perfectly indifferent to what is happening. They leave her in batches and

begin to climb the cage in which I have placed them. They make for the heights with surprising quickness, though the mother stays on the solid ground. They hurry to the very top. They hang out threads across the opening. On these footbridges they perform slack-rope exercises. I begin to realize that they wish to go higher.

I take a nine-foot reed, with tiny branches and place it at the top of the cage. The little tarantulas climb to the very top. Here they send out longer threads, which are left to float, and which again form bridges when the loose end touches some object. The rope dancers embark on them and form garlands which the least breath of air swings daintily. I cannot see the threads at all unless they come between the eyes and the sun. The spiders look as if they were dancing in the air.

Then suddenly shaken by the air, the delicate moorings break and fly through space. Behold the little spiders fly away, hanging to their threads! If the wind be favorable, they can land at great distances. At last, the whole family has disappeared, carried afar by its flying ropes. The mother is alone. The loss of her children hardly seems to distress her. She goes on with her hunting with greater energy now that her coat of little ones is gone. She will have other families, become a grandmother, and a great-grandmother, for the tarantulas live for several years.

What a strange leave-taking! The mother never climbs, and after the flight the children apparently forget how. Neither dreams of climbing to the top of a grass stalk. Yet here we have the young tarantula an enthusiastic climber when he wishes to set out into the world.

— From *Insect Adventures*, by Henri Fabre.¹

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35. CHOOSING THE RIGHT WORD

This is another short selection from which certain words are omitted. Read the selection in order to get the general idea, and then decide upon good words that will fit the meaning to substitute for the numbers. Take a piece of paper and write your words opposite the proper numbers. Your teacher will tell you what words Irving used in these places, and a comparison will be interesting.

IT was determined, however, to take the opinion of old Peter Vanderdonk, who was seen slowly advancing up the road. He was a descendant of the historian of that name, who wrote one of the earliest accounts of the province. Peter was the most (1) inhabitant of the (2) and well versed in all the wonderful events and traditions of the neighborhood. He recollected Rip at once, and corroborated his story in the most satisfactory manner. He (3) the company that it was a fact, handed down from his ancestor, the historian, that the Kaatskill Mountains had always been (4) by strange beings. That it was (5) that the great Hendrick Hudson, the first discoverer of the river and country, kept a kind of vigil there every twenty years, with his crew of the *Half Moon*: being permitted in this way to revisit the scenes of his enterprise, and keep a (6) eye upon the river and the great city called by his name. That his father had once seen them in their Dutch dresses playing at nine-pins in a hollow of the mountain; and that he himself had heard, one summer afternoon, the sound of their balls like distant peals of thunder.

Rip now resumed his old walks and habits; he soon found many of his former (7), though all rather the worse for the wear and tear of time; and preferred making friends among the rising generation, with whom he soon grew into great favor.

Having nothing to do at home, and being arrived at the happy age when a man can be idle with impunity, he took his place once more on the bench at the inn door, and was (8) as one of the patriarchs of the village, and a chronicler of the old times "before the war." It was some time before he could get into the regular track of gossip, or could be made to (9) the strange events that had taken place during his torpor. How that there had been a revolutionary war — that the country had thrown off the yoke of old England — and that, instead of being a subject of his Majesty George the Third, he was now a free citizen of the United States. Rip, in fact, was no politician; the changes of states and empires made but little (10) on him; but there was one species of despotism under which he had long groaned, and that was — petticoat government. Happily that was at an end; he had got his neck out of the yoke of matrimony, and could go in and out whenever he pleased, without dreading the (11) of Dame Van Winkle. Whenever her name was mentioned, however, he shook his head, shrugged his shoulders, and cast up his eyes, which might pass either for an expression of resignation to his fate, or joy at his (12).

— From *Rip Van Winkle*, by Washington Irving.

36. THE SMALLEST CONTINENT

If you already know something about the smallest of continents, you may find below some additional interesting facts. If, however, you do not know about Australia, you will find in this selection much valuable information.

So that you may get a clear idea of the facts given, read the selection carefully, and as you finish reading each paragraph write on paper the topic it treats. When you have finished in this manner, you will have a simple outline of the whole which will be helpful in fixing in mind the main facts of the selection.

AUSTRALIA is larger than the United States. You could put every country of Europe into it except Russia. Its population is about 5,500,000. As our own is about twenty times as large, you can see that there is room for the population of Australia to grow. Its early settlers were, like our own, from the British Isles. Though there are many of the yellow peoples in densely populated Japan and China, who would like to live in Australia, the people there now plan to keep it for the white people. No Chinese or Japanese are admitted.

The continent of Australia is in the torrid and temperate zones. Parts of it are warmer than any part of the United States, but its products are much the same. Only one per cent of the land is under cultivation. Most of this island continent will remain forever a desert, for the eastern mountain ranges take nearly all the rainfall, leaving little for the interior. Since the prevailing winds are from the east, the moisture is not sufficient to provide in the

interior for anything but grass. In part it is a real desert. The maps in your geography will make this clearer.

Because of the mild climate of the interior and the vast grassy plains, we are not surprised to find that sheep raising is the most important industry. There are about 100,000,000 sheep and 13,000,000 cattle in these pastures. Australia leads the world in producing mutton and wool. Part of these products come to us in the form of food and clothing. In Australia you would find wheat, corn, cotton, sugar cane, bananas, and oranges. Grapes are a large crop.

The mild climate, the pioneer life, the beautiful scenery, and the open country, have made the Australians an out-of-door people. They ride on horseback into the "bush," as they call the unsettled land, to hunt, and fish, and picnic as well as to work. A traveler meets a warm welcome everywhere. With a blanket to sleep on, you may go anywhere with no expense for food. The people are tall and healthy because of this open-air life.

There are mines for gold, silver, copper, tin, lead, and zinc. Coal and iron also await the coming of miners and manufacturers.

Australia has her own plants and animals. This is because she is so far from the other continents that life has developed in its own way. Certain animals and trees, which are found only as fossils on other continents, are still found there. Australia has no native cats, pigs, horses, sheep, elephants, tigers, lions, or camels. But it has the kangaroo and the wombat and the bandicoot, animals which carry their young in a pouch. It has the duckbill, an egg-laying, web-footed, beaver-tailed creature with a bird-like beak.

The white man found the "black fellows" on the island. They were very primitive, quite ignorant of all civilized ways, living without clothing except skins, not cultivating the soil, counting only to three or four. As a result of the coming of the white races and of the ignorance of the "black fellows," these tribes are rapidly disappearing.

Not many people went to Australia until 1851, when gold was discovered. The continent was not fully explored until fifty years later. Just as our country is newer than Europe, so Australia is newer than ours.

The government is like that of the United States, with six states. The country is a part of the British Empire, but is practically independent. A great deal of effort is made to take care of all the people well. The schools are good, and all children must attend. The people are prosperous and there are very few paupers.



37. A FRIENDLY INDIAN

You can learn to read rapidly by definite practice. It will do you no good, however, to read fast unless you get the meaning of what you read.

Do not begin to read this selection until you are told to do so by your teacher.

MANY of the Pilgrims knew little or nothing about farming. Everything was new and strange to them, but their hardships would have been even greater than they were but for the help of an Indian named Squanto. He had been a member of the tribe which at one time owned the site of Plymouth, and had lived there with his tribe. But a party of English sailors, a few years before this, had captured him and had taken him to Spain. There the unhappy man was rescued by a kind Englishman who took him to London, where he lived for some years as a servant. Finally he made his way back to his old home and hunting grounds at Plymouth. But none of his old friends were there.

While he had been away, a terrible disease had killed or scattered all his tribe, so he now again became a wanderer. At length he joined another tribe of Indians who lived not far from Plymouth. A wandering Indian called Samoset invited him one day to go with him to Plymouth, and introduced him to the Pilgrims.

Squanto became very friendly with the colonists because they were English and he remembered the kindness of the Englishman who had found him a slave in Spain

and had taken him to England. He was a great help to the colonists in many ways. He told them about the Indians around them. He helped them to become friends with some, and to arrange treaties with several tribes. He sold them the land upon which the Plymouth colony was established, for the Pilgrims looked upon Squanto as the owner because he was the last living member of the tribe to whom it had belonged.

He showed them how to catch fish. He told them what to plant and when and how to plant it. He taught them how to raise Indian corn, which did not grow in England and which the colonists had never before seen, but which soon became their chief dependence for food.

He was their friend, their guide, their interpreter, and their go-between with the other Indians. It was he who made possible the famous treaty with Massasoit, the chief of the most warlike tribe near them. Miles Standish, accompanied by Squanto and six musketeers, marched out one morning along the town brook to a place where Massasoit and his warriors awaited them. They fired a salute and then all marched back to the town to a house which had been especially prepared for the occasion. It was fitted up with cushions and a green carpet, which were great luxuries in those days.

The governor of the colony met them, and a treaty of peace and friendship was signed. This treaty was faithfully kept by both white and red men for fifty years.

Perhaps it is not too much to say that without the help of Squanto the Plymouth colony could not have survived. Were justice done, a statue of him would be made and placed in the streets or parks of Boston, the metropolis of the great state which includes Plymouth.

38. THE ADVENTURES OF BARONESS RIEDESEL

The surrender of General Burgoyne's army at Saratoga in 1777 was the turning point of the Revolutionary War. His army included a large force of German soldiers under the command of Baron Riedesel. His wife accompanied him in this campaign, and has left a very interesting account of what went on within the British army.

After you have read this account, put down on paper several of the reasons that you think might have caused the defeat of Burgoyne. Do you learn anything about the character of the American general?

IN the beginning all went well. We thought that there was little doubt of our being successful and of reaching "the promised land." I observed, however, with surprise, that the wives of the officers were beforehand informed of all the military plans; and I was so much the more struck with it, as I remembered with how much secrecy all dispositions were made in the armies of Duke Ferdinand during the Seven Years' War. Thus the Americans anticipated all our movements and expected us wherever we arrived, and this of course injured our affairs.

While breakfasting with my husband on the 7th of October, I heard that something was under contemplation. General Fraser and, I believe, Generals Burgoyne and Phillips were to dine with me on that day. I remarked much movement in the camp. My husband told me that it was a mere reconnoissance; and as this was frequent, I was not much alarmed at it. On my way homeward, I met a number of Indians armed with guns and clad in their war dresses. Having asked them where they were

going, they replied, "War, war," by which they meant that they were about to fight. This made me very uneasy, and I had scarcely got home before I heard reports of guns; and soon the fire became brisker, till at last the noise grew dreadful, upon which I was more dead than alive. About three o'clock in the afternoon, instead of guests whom I had expected to dine with me, I saw one of them, poor General Fraser, brought upon a hand-barrow, mortally wounded. The table, which was already prepared for dinner, was immediately removed, and a bed placed in its stead for the general. I sat terrified and trembling in a corner. The noise grew more alarming, and I was in a continual agony and tremor, while thinking that my husband might soon also be brought in, wounded like General Fraser. At length, my husband came; and from that moment my affliction was much soothed, and I breathed thanks to God. We poor females had been told that our troops had been victorious, but I well saw by the melancholy countenance of my husband that it was quite the contrary. On going away, he took me aside to tell me everything went badly, and that I should prepare myself to depart, but without saying anything to anybody. Under the pretense of removing the next day to my new lodgings, I ordered the baggage to be packed up.

Profound silence had been recommended to us; large fires were lighted; and many tents were left untouched, to conceal our movement from the enemy. We proceeded on our way the whole night. Frederica was afraid, and began to cry so that I was obliged to press a handkerchief to her mouth.

We were halted at six o'clock the next morning, to our general amazement. General Burgoyne ordered the

artillery to be drawn up in a line, and to have it counted. This gave much dissatisfaction, as a few marches more would have insured our safety. My husband was exhausted by fatigue and took a seat in the calash, where my maids made room for him; and he slept for three hours upon my shoulder. In the meantime, Captain Willoe brought me his pocket-book, containing bank-notes, and Captain Geismar, a beautiful watch, a ring, and a well-provided purse, requesting me to keep them. At length we recommenced our march; but scarcely an hour had elapsed, before the army was again halted, because the enemy was in sight. They were but two hundred in number, who came to reconnoiter, and who might easily have been taken, had not General Burgoyne lost all his presence of mind. On the 9th it rained terribly the whole day; nevertheless, we kept ourselves ready to march. The savages had lost their courage, and they walked off in all directions. The least untoward event made them dispirited, especially when there was no opportunity for plunder. My chambermaid exclaimed the whole day against her fate, and seemed mad with despair.

We reached Saratoga about dark, which was but half an hour's march from the place where we had spent the day. I was quite wet, and was obliged to remain in that condition for want of a place to change my apparel. I seated myself near the fire, and undressed the children, and we then laid ourselves upon some straw. I asked General Phillips, who came to see how I was, why we did not continue our retreat, my husband having pledged himself to cover the movement, and to bring off the army in safety. "My poor lady," said he, "you astonish me. Though quite wet, you have so much courage as to wish

to go farther in this weather. What a pity it is that you are not our commanding general! He complains of fatigue, and has determined upon spending the night here, and giving us a supper." It is very true that General Burgoyne liked to make himself easy, and that he spent half his nights in singing and drinking.

I refreshed myself at seven o'clock the next morning, the 10th of October, with a cup of tea, and we all expected that we should soon continue our march. General Burgoyne had given orders to set fire to General Schuyler's fine buildings and mills at Saratoga for the purpose of securing our retreat. An English officer brought me some good soup, and insisted that I should partake of it. After this we continued our march, but only for a short time. There was much misery and disorder in the army. The commissaries had forgotten to distribute provisions, though we had an abundance of cattle. I saw more than thirty officers who complained bitterly of hunger. I gave them coffee and tea, and everything eatable that I had in my calash. My cook was a great rogue, but a man of infinite resources. He availed himself sometimes of the darkness of the night to ford brooks and steal poultry, sheep, and hogs, and put them upon his bills as if he had bought them, a maneuver of which it was a long time before we knew anything. But my provisions were now exhausted, and regretting deeply my inability to assist those who came to complain of hunger, I called to Adjutant-General Patterson, who accidentally passed close by me, and said with all the indignation which I felt at that moment: "Come, sir, see these officers who have shed their blood for the common cause, and who are in want of everything because they do not receive what they ought to receive. It is your

duty to call the general's attention to all this." He seemed much affected, and the consequence was that, in less than a quarter of an hour, General Burgoyne came towards me and thanked me most pathetically for having reminded him of his duty. He added that a general whose orders were not obeyed was much to be pitied. I replied that I begged his pardon for having meddled in affairs with which a woman had nothing to do; but that I could not forbear saying what I had expressed when I saw so many gallant officers in need of everything, while I was destitute of the means of assisting them. He thanked me again (though I really believe he has never forgiven me), and addressing the officers, said that he felt much regret for their sufferings, and that he had given orders to remedy them, and asked why they had not called on him, as they must know that as long as he had anything to eat they might dispose of it. They replied that British officers were not accustomed to intrude themselves into their general's kitchen, and that they had accepted, with much pleasure, the least morsel that I had given them, for they were sure that it was offered with real kindness. He then gave new orders to the commissaries to be in the future more attentive to their duties. But this did not much mend our situation, though it caused a longer delay. The general went to eat, and our calashes remained in readiness to depart. Everybody advised a retreat, and my husband pledged himself to effect that movement, if no time was lost. But General Burgoyne, who had been promised a great reward, if he should effect his junction with General Howe, could not be persuaded to it, and lost everything by his dilatoriness. About two o'clock, we heard again a report of muskets and cannon, and there was much alarm and bustle among our troops.

My husband sent me word that I should immediately retire into a house which was not far off. I got into my calash with my children, and when we were near the house I saw on the opposite bank of the Hudson five or six men, who aimed at us with their guns. Without knowing what I did, I threw my children into the back part of the vehicle, and laid myself upon them. At the same moment the fellows fired and broke the arm of a poor English soldier, who stood behind us, and who being already wounded, sought a shelter. Soon after our arrival, a terrible cannonade began, and the fire was principally directed against the house, where we had hoped to find a refuge, probably because the enemy inferred from the great number of people who went towards it that this was the headquarters of the generals, while in reality none were there except women and crippled soldiers. We were at last obliged to descend into the cellar, where I laid myself in a corner near the door. My children put their heads upon my knees. An abominable smell, the cries of the children, and my own anguish of mind did not permit me to close my eyes during the whole night. On the next morning, the cannonade begun anew. Eleven cannon balls passed through the house, and made a tremendous noise. I was myself in the deepest distress, not so much on account of my own dangers, as of those to which my husband was exposed, who, however, frequently sent me messages inquiring after my health.

The want of water continuing to distress us, we could not but be extremely glad to find a soldier's wife so spirited as to fetch some from the river, an occupation from which the boldest might have shrunk, as the Americans shot every one who approached it. They told us afterwards that they spared her on account of her sex.

We remained six days in this doleful retreat. At last, a capitulation was talked of, in consequence of having lost by useless delays the opportunity of effecting our retreat. A cessation of hostilities took place, and my husband, who was quite exhausted by fatigue, could now, for the first time, take some rest under a tolerable shelter. He slept quietly in a little chamber, while I retired with my children and the maid-servants into the adjoining room. Towards one o'clock a person came and asked to speak with him. I was very reluctant to awaken him at that hour of the night; and I soon observed that the errand did not much please him, for he immediately sent the messenger back to the headquarters and laid himself down again out of humor. Soon after this General Burgoyne sent for all the generals and field-officers to attend a council of war early next morning, when he proposed to break the capitulation, in consequence of some groundless information he had received. It was, however, decided that this step was neither advisable nor practicable; and this determination was very fortunate for us, as the Americans told us afterwards that had we broken the treaty we should all have been cut to pieces. This they could easily have done, as our army was reduced to four or five thousand men, while we had given them time to raise theirs to twenty thousand. On the morning of the 16th, however, my husband was obliged to repair to his post, and I to my cellar.

On the 17th of October the capitulation was carried into effect. The generals waited upon the American General Gates, and the troops surrendered themselves prisoners of war and laid down their arms. The time had now come for the good woman who had risked her life to supply us with water to receive the reward of her services. Each

of us threw a handful of money into her apron, and she thus received more than twenty guineas. At such a moment at least, if at no other, the heart easily overflows with gratitude.

At last my husband's groom brought me a message to join him with the children. I once more seated myself in my dear calash, and, while riding through the American camp, was gratified to observe that nobody looked at us with disrespect, but on the contrary greeted us and seemed touched at the sight of a captive mother with three children.

I must candidly confess that I did not present myself, though so situated, with much courage to the enemy, for the thing was entirely new to me. When I drew near the tents, a good-looking man advanced towards me, helped the children from the calash, and kissed and caressed them; he then offered me his arm, and tears trembled in his eyes. "You tremble," said he. "Do not be alarmed, I pray you."

"Sir," cried I, "a countenance so expressive of benevolence and the kindness which you have evinced towards my children are sufficient to dispel all apprehension."

He then ushered me into the tent of General Gates, whom I found engaged in friendly conversation with Generals Burgoyne and Phillips. General Burgoyne said to me, "You can now be quiet and free from all apprehension of danger." I replied that I should indeed be reprehensible if I felt any anxiety, when our general felt none and was on such friendly terms with General Gates.

All the generals remained to dine with General Gates. The gentleman who had received me with so much kindness came and said to me, "You may find it embarrassing to be the only lady in such a large company of gentlemen; will

you come with your children to my tent and partake of a frugal dinner offered with the best will?"

"By the kindness you show to me," returned I, "you induce me to believe that you have a wife and children."

He informed me that he was General Schuyler. He regaled me with smoked tongues, which were excellent, with beef-steaks, potatoes, fresh butter, and bread. Never did a dinner give me so much pleasure as this. I was easy after many months of anxiety, and I read the same happy change in the countenances of those around me. That my husband was out of danger was a still greater cause of joy.

After our dinner General Schuyler begged me to pay him a visit at his house near Albany, where he expected that General Burgoyne would also be his guest. I sent to ask my husband's directions, who advised me to accept the invitation. The reception which we met with from General Schuyler, his wife and daughters, was not like the reception of enemies, but of the most intimate friends. They loaded us with kindness; and they behaved in the same manner towards General Burgoyne, though he had ordered their splendid establishment to be burned, and without any necessity, as it was said. But all their actions proved that at the sight of the misfortunes of others they quickly forgot their own. General Burgoyne was so much affected by this generous deportment that he said to General Schuyler, "You are too kind to me, who have done you so much injury."

"Such is the fate of war," replied he; "let us not dwell on this subject." We remained three days with that excellent family, and they seemed to regret our departure.

— From *Letters and Memoirs of Baroness Riedesel*, translated from the original German.

39. HOW MOTION PICTURES ARE MADE

You have doubtless seen many strange and beautiful scenes at the movies, and have often wondered how such pictures are made. This selection will answer many of your questions. After reading the article, discuss in class any matters you do not understand, referring to the article for the facts, if there is a difference of opinion.

WHAT kind of motion pictures do you like best? At the theater you may see wonderful pictures of waterfalls, lakes, mountains, and other real scenes that travelers go thousands of miles to visit. You may see pictures of famous men and of important events at home and abroad. You may see pictures of people at their work and at their games in all the lands of the earth.

On the other hand, many pictures show us plays, in a world of make-believe, where the people we see are actors hired to play their parts before the camera. Some of the motion picture plays are funny, some are interesting, and some historical plays tell a true story of the past.

Motion picture plays can be divided into two classes: first, those that are produced on a studio stage; and second, those produced out-of-doors. The interesting things about either kind would fill a book the size of this.

In the early days of motion pictures, only simple shows were attempted, but now nothing is too big or too expensive for the big concerns making pictures in the United States and Europe. All well-equipped motion-picture studios these days are fitted out with space for several stages, a great tank for water scenes, carpenter shops, furniture,

costumes, and a great number of photographers, scene painters, and mechanics, besides the company of well-paid actors who take part in the shows.

If a play is to be produced in the studio, the plans for the scenery are sent to the stage carpenters, who make the framework and stretch the canvas. The blank scenery is then sent to the racks, where the scene painters get to work on it.

The property man at the studio, just like the property man at a theater, has a list of the things he will need to furnish the stage and give the actors the articles needed in the play. He goes to his store room and brings out tables, chairs, pictures, etc. The studio costumer also checks off her list and sees that she has in her great wardrobe the costumes to dress the actors for their parts.

Meantime, the actors are called together, the scenario is read, and rehearsals begin, several scenes being done at one time. In the play, the actors sometimes speak their lines — that is, the words the character would say — because it often helps them to give the proper expression.

Finally, when the stage director is satisfied with one scene of a play, after perhaps days or weeks of rehearsing, the photographer is called. He consults with the stage manager, measures off the distance for his focus, so that he will get all that is necessary into the picture, and nothing that is not wanted; and after seeing that every detail is attended to, the stage manager says, "Go!"

The photographer begins to turn his crank, keeping one eye on the stage and the other on his stop watch, and the stage director counts off seconds, meanwhile shouting instruction to the actors on the stage. To an outsider the noises sound like a riot rather than a picture play timed

to the second, in which the movement of an eye counts in the final effect. While the camera clicks off sixteen snapshots to the second, the stage director calls out the seconds, "One, two, three. One, two, three. Look out there, don't get out of focus! Keep toward the center of the stage. Now, Jim, run in and grab the book agent — hurry. Look angry! One, two three. That's fine. Hey, there! shake your fist." And so it goes, until the director rings a bell or shouts, "That's all!" and the scene is ended. Just as the last pictures are being run off, a stage hand rushes into the scene and holds up a large placard with a big number on it. This number is the number of the scene in the play, and is watched by the people in the assembling room when they gather the various scenes of a picture play together and join them up in the proper order for one roll.

Although battles on a bridge, and other spectacles ever larger, are staged in the big motion-picture studios, the most exciting work in the filming of motion-picture plays is out of doors where the natural surroundings make the stage. A great many of the shows seen to-day are taken this way, with real trees, real mountains, or real streets as the settings. For example, an historical film dealing with Washington's trip across the icy Delaware was made under conditions very much like those of the actual events. The pictures were taken during the coldest part of winter, and the scene shifters had to work for hours in the bitter cold, breaking up the ice and shifting around the great cakes in order to get the desired effect. Again, for a play representing life in the African jungle, a special trainload of actors, and another trainload of elephants, camels, leopards, zebras, and other animals, were shipped to Florida, where scenes much like those in Africa were found.

A famous Chicago studio has not only a great building in which indoor plays are filmed, but also a great land reserve for outdoor productions. In one place are artificial hills built in the natural forest, and upon them artificial castles. In another are log cabins for frontier scenes, and in yet another a barren stretch for other kinds of scenes. A Los Angeles company is close to the mountains, the ocean, and the desert, so it can furnish material for an endless variety of exciting Wild West shows.

Big spectacles are always popular, and to fulfill the demand, two locomotives have been run together at high speed, the motion-picture concern buying the machines outright for the purpose and leasing the railroad for a day; an automobile has been driven over the Palisades of the Hudson River, ships have been towed out into the ocean and blown up; and whole towns of flimsy stage construction have been built only to be burned, while the motion-picture photographer recorded the whole thing on a film. One concern even got permission from the Los Angeles fire department during a big fire to dress an actor as a fireman and photograph him as he rushed up a ladder amidst the flames and rescued a screaming woman from an upper window. The woman was an actress who had risked her life to go into the burning building and be rescued.

The great motion-picture industry has had some fatal accidents. Several times actors playing the parts of men in difficulty in the water have been seized with cramps and have drowned. Once a picture was being taken of a band of train wreckers who were supposed to tie the switchman to the track. The train was supposed to stop just short of the man, but it actually ran over him and killed him. During the filming of war pictures, there have

been explosions of gunpowder that were not intended, and in the taking of pictures of wild animals, several photographers have been badly injured.

Another big department in the filming of motion-picture plays is trick photography. Every one who reads this has seen at the picture theater films of things that he knows perfectly well never could have happened — such as men walking on the ceiling, fairies the size of a match acting on a table beside a man, a saw going through a board by itself, a man run over by an automobile, his legs cut off, and then stuck on again all within a few minutes. All of these things are done through trick photography.

Double exposure and the stop-motion are the common methods of obtaining these marvelous results. A popular trick with the double exposure is a scene showing mermaids or divers swimming or walking at the bottom of the sea. First, a large glass tank is set up in the studio, stocked with fish and sea life, and photographed. Next a space the size of the tank is measured off on the floor with a gray scene laid flat. The actress dressed like a mermaid lies on the setting and goes through the motions of swimming while the film upon which the real water pictures were taken is run a second time through the camera.

Another example of double exposure is seen in most films where fairies enter into the pictures. The parts of both full-grown human beings and tiny fairies are played alike by adult actors, but the difference in their size is obtained by taking each on the same film at different times. For instance, suppose a tiny fairy is to appear to a grown man in the picture play. First, the man goes through his act with the camera photographing him from a distance of about fifteen feet. Next the fairy goes through her act,

bowing, and dancing to the place where the man stood, and is photographed on the film from a distance of say one hundred and fifty feet. The two impressions when printed give a lifelike effect of a full-grown man and a tiny sprite.

There are numberless films made by the stop-motion system, which simply means that the stage hands rush in and arrange things while the shutter is closed. All pictures in which you see a man or a woman falling off a roof or out of a window and then getting up and running away are made by this system. The film showing an automobile going over the Palisades and the driver being hurled to the rocks below was done with the stop-motion. It is very simple. The photographer first photographed the automobile and the human driver in the seat approaching the cliff at terrific speed. He stopped his camera, the automobile came to a stop, the driver got out, and a dummy was placed in his seat. Then the automobile was again started a little back of where it was slowed down and stopped, and when the films were fitted together the public could not tell that the car had been stopped, and that the man in the seat who was hurled to the rocks below with the machine was only a dummy.

A development of this is the picture-a-turn motion, which simply means that with each turn of the crank of the camera one exposure is made. By this trick many of the strangest films seen are made possible. The magic carpenter shop where saws and hammers move without human aid is an example. It is done by stage hands who after each turn of the camera, advance the tools to one more stage of motion. The saw is at the top of the board, and the hammer is suspended in air (by fine wires), etc.

In the next picture, the saw is in different position, and the hammer is hitting the head of a nail.

A great many good films, such as railroad wrecks and automobile journeys through the clouds, are made with models drawn by strings over skillfully built scenery. The scene of persons walking on the ceiling is very simple, inasmuch as it is only necessary to set the floor of the stage to represent a ceiling and take the pictures with the camera upside down. Men and animals can be shown as running up the sides of buildings, simply by laying the scenery on the studio floor, and photographing the whole thing from above.

Moving the film backward will give many strange results. For instance, in the plays where a little child is snatched from death under the wheels of an onrushing train just as the cowcatcher is upon her, it is no longer necessary to risk human lives before trains. First, the onrushing train is photographed with the film moving forward right up to the point where the child is to be standing when rescued. Then the train is allowed to run on past the point. It is then backed up at high speed, while a film is run backward. When the locomotive rushes past the spot where the child is to be rescued, her heroic rescuer simply dashes on to the tracks and places the child between the rails. This section of film, which is taken backward, is fitted into the rest of the ribbon, and is run forward when shown on the screen; and it looks as if the rescuer had grabbed the child out of the way as the train passed by.

— Adapted from *The Boy's Book of New Inventions*, by Harry E. Maule.¹

¹ Published by Doubleday, Page, and Company, Garden City, N. Y.

40. COUNTRY LIFE IN POLAND

Life in older and far-away countries is quite different from anything we know in the United States. When the people from these countries first land here, they seem very strange to us, though we doubtless seem even stranger to them. If we knew how the people of other countries lived, perhaps we should feel more friendly toward them.

This is a description of the life of those who work on the land in Poland. As you read, see if you find the answers to these questions:

1. What would you like to see if you visited Poland? Why?
2. What parts of Polish life would be good to have in the United States?
3. What should we not like to have here?

THE happiest and most colorful life in Poland is found among the peasants. From April to early November they virtually live outdoors.

At noon the children gather in the fields for lunch, which consists of black bread, water from a spring, and perhaps some dried black meat that a peasant has smoked and cured. The boys wear different costumes; some are in boots which, like their fathers', are much too large, and into which they tuck their deerhide trousers; some wear a close-fitting jacket or a homespun shirt with a necktie like a scarf, and a broad-brimmed hat with a feather stuck in it. Other boys go barefoot; they wear long trousers rolled up to the knees, and a ragged shirt with a gayly colored rag round their throats. Straw hats are very scarce. The girls wear dresses of gorgeous yellows, blues, and reds and a bright cloth of a different color from the dress hooded about their heads. The women all work outdoors, especially when

the men are needed in the army. In time of peace you find the women indoors attending to the household duties, which they love, making every corner of the little cottages shine, polishing the few metal dishes that they own, or preserving vegetables or meats for the cold winter.

The people's love of music and of the dance is evident everywhere. At spare moments in the fields you see the children gathered round some boy or girl who is playing a violin or an accordion. Often the whole company join hands and dance in a ring round the player. The words of Polish songs come to you as the people go about their work. The sunlight is golden and comfortable, and all round you is a pleasant smell of new-turned earth.

But on a holiday it is different. The country churches are the gathering places. Early in the morning wagons loaded with men, women, and children in their holiday garb pass one another on the road. As there are usually at least fifteen children in each family, it is a hard task for the horse to draw all of them on one wagon, but he seems to manage it somehow. The colors of the dresses are like the flowers and the sun and the little blue lakes, and over all is the deep blue of the great sky or the vivid hues of the clouds at sunset and at dawn.

In the little village where the church is situated there is a great commotion. The school children are marching to church in a small body. Soldiers home for the holiday go in with their families and friends. All the shrines along the road are heaped high with offerings of flowers; banners and flags hang from windows and doors. The people sing a great chorus in the church, say prayers, and listen to the priest, who gives a little talk on the meaning of the holiday; then the company disperses about the town to

enjoy itself as on fair day. There are booths where gingerbread and whitebread sticks are sold, and there are booths where you can buy little sugar animals. In the afternoon there are games, dances in the open greens, and perhaps some drilling by the soldiers. It is a scene of beautiful color — the dresses, the uniforms, and the banners. At last after dark the company turns to the town hall, where the *mazur*, or national dance, is to be performed.

There are first some dances similar to our waltz; the polka is a Polish dance and very popular. Then follow some folk dances with pretty figures and much bowing and curtsying, and finally with a great booming of violins the *mazur*, or *mazurka*, begins.

Just as we have a national song, the Poles have this national dance. Like our old square dances, it consists of a series of figures, each of which represents some epoch of Polish history. First comes the march, in which every one joins. There is a master of ceremonies who has arranged all the details of the dance, and at his shouts the musicians and the dancers change the music and the figures. He is dressed in the uniform of a Polish officer in the army of 1812 — high boots, spurs that jingle, red trousers, and a blue coat. He is very graceful, and when he dances alone he does it with a skill that keeps all eyes on him. No one may cross the floor without dancing; if a man takes his partner into the line of march they must both dance along to the music until they are in position. How the dance wakes the old grayheads! As the spirited music goes on and on, they shout and applaud with all the fervor of young men of eighteen. Some of them even seize a partner and dash headlong into the merry company.

At last after many windings and turnings and breakings

and separatings the company is divided into parties of sixteen each. The first sixteen takes the floor and performs the first figure of the mazurka. The others shuffle to their seats and await the signal of the master of ceremonies. He never seems to tire or lose his enthusiasm, but dances with all the sixteens one after another with all the vim of those first on the floor. It must be tiring, for the whole of the mazurka takes about three hours.

One of the prettiest figures is called Chivalry. The women glide to their seats while the men join hands and spin in a circle round the center of the hall, clicking their heels and spurs together at regular intervals. Then one of them glides away alone and dances back, holding a young woman by the hand. She is admitted to the center of the circle, and the men stamp about her. At a certain point in the music she throws her handkerchief into the air, and the men immediately snatch for it. He who succeeds in getting it immediately waltzes away with her as his partner for the rest of the evening. It often seems to the onlookers as if some of the young women were pretty sure of their aim before they threw their handkerchiefs.

One by one the different groups perform their allotted figures in the dance until all have finished. Then they make a rush for refreshments, which seem to have been provided free of charge by the village people. There are dried fish and cheese, delicate little cakes, and rolls with chopped meat inside. There are also strings of sausage, smoked beef, and pitchers of foaming milk. All the town beggars, the sick or the infirm, and the helpless old folk are then called in to eat to their hearts' content.

During the war, when the soldiers were quartered in the villages, an attempt was made to keep up the gayeties on

the many holidays, just as in the prosperous days of peace. There was not so much to eat, but there were music and light and laughter. Music seems to be a necessity. During the war older musicians who had not played regularly for years were called upon, and they did their bit manfully, playing the tunes as of old while their brothers, the younger musicians, went into the army and fought by the side of the men and women who were saving Poland.

The winters in Poland are long and cold. There are no furnaces and virtually no steam heat. The sun rises about half past nine in the morning and sets at four in the afternoon. In the country many of the animals sleep indoors with the peasants; the dogs, the pigs, and the children often sleep in the same room. For heat there are open fireplaces and great old-fashioned Russian stoves that reach from the floor to the ceiling, and that when once heated retain their warmth for several days, for they are made of bricks built in very thick layers. Sleighs are dragged from the sheds, and along the roads you continually hear the jingling of merry bells; on Sunday morning the highways are lined with them on the way to church.

Furs are plentiful. Poor indeed is the peasant who has not a heavy fur coat with cap and mittens to match. Shoes have always been scarce in Poland, and, although the parents and the girls who are being courted may wear city-made boots, the younger children all have homemade contraptions of hides or of thick cloth. The boys who go into the army go home with high boots or shoes, and in many cases a pair is so carefully kept that it lasts a lifetime. Even in cold weather you can see peasants trudging barefooted down the road, holding their boots in their hands so as not to wear them out with walking.

In the winter the young men call on the young women of their neighborhood under some difficulties. They may persuade their fathers to lend them the family sleigh for a short time, and then get ahead of other suitors by going driving with the young women whom they hope to marry. As soon as a girl has expressed a preference for a young man, the two are objects of more or less honor in each household. The fathers and mothers come visiting each other's houses and exchange many gifts. The girl's father agrees to settle money on the young pair as soon as they are married, and with that and the money of the bridegroom all the parties concerned go out looking for a home for the couple.

The courtings are usually short. Households are always overcrowded, and fathers and mothers, though they love their children dearly, are nevertheless satisfied to see number eight of one family married to number seventeen of another; when they are gone the small houses are less crowded. The priest reads the names of the bride and the bridegroom in church on three successive Sundays, and then, if the season is right, the marriage takes place on a bright morning, and the celebration at the home of the bride's parents lasts for three days. All the relatives for miles round are present. There are feasting and dancing, and the landowners who live in the great houses often drive up in their carriages to see the festivities. By way of ending the celebration, the company takes up a collection to help start the young pair in life.

— Eric P. Kelly in *The Youth's Companion*.¹

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41. HOW TO STUDY GEOGRAPHY

In the article "Country Life in Poland," you learned many interesting facts about the life of the people. Doubtless it aroused curiosity to know more about Poland — its history, physical features, and industries. This selection, taken from a textbook on geography, will give you this information.

In studying this article, you would try to find the answers to questions like these. You will need, of course, to consult a map frequently.

1. What is the history of the Polish nation?
2. What is the nature of the surface of the country?
3. What are its boundaries, rivers, and chief cities?
4. What does the country produce?

POLAND became a separate kingdom nearly one thousand years ago. During long periods it embraced large areas in central and eastern Europe. In general the Carpathian range formed the southern boundary and the Baltic shore was the northern limit. More than one hundred years ago the country was divided among the sovereigns of Prussia, Russia, and Austria. Notwithstanding prolonged persecution the Poles kept their language, their national feeling, and their desire for independence.

Following the World War the Polish people gained their freedom and reunited under a republican form of government. The western boundary of Poland was located partly by the treaty of 1919 and partly as the result of a plebiscite (1921) in the rich coal-mining region of upper Silesia. The eastern boundary was agreed upon after a hard-fought war between Russia and Poland in 1920.

The Vistula is the great river of Poland and most of the country lies in its basin. On its upper waters and not far from the Carpathian Mountains is Krakow, the ancient capital. Near the middle of the country on the banks of the river is Warsaw, the present capital. The city has about 900,000 people and is the chief railway center. Railway lines connect Warsaw with Krakow and Vienna, Berlin, Danzig, and the Baltic Sea, Leningrad, Moscow, and Odessa. Posen is an important city in the region recovered from Germany.

The country is low and flat, except for the foothills of the Carpathians and the glacial hills in the north. In this northern or glacial region there are many lakes and large swamps. A large part of this area is covered with forests.

The leading occupation is agriculture, and the principal crops are rye, oats, wheat, potatoes, and sugar beets. Fine horses, cattle, and sheep are raised. The manufactures include cotton and other textiles, leather, iron, and steel. These industries center mainly in Warsaw and Lodz. The latter city is especially known for its cotton mills.

Among the mineral resources are coal, iron, zinc, and salt. Not far from Krakow are some of the most remarkable salt mines in the world. The beds of salt are of great thickness and extend for several hundred miles. Like other beds of rock salt they are due to evaporation of sea water in ancient periods of time. Near Krakow is a mine with 48 miles of galleries at different levels down to 900 feet. It has been worked for hundreds of years and is like an underground town. The province of Galicia also has a large output of petroleum.

Danzig was for centuries a Polish city, but in the dissolution of Poland it came under the rule of Prussia, and it is

now peopled mainly by Germans. It is the great seaport at the mouth of the Vistula, and is the chief outlet available for the foreign trade of Poland. At the close of the World War it was internationalized and was made a free city under the care of the League of Nations. Definite privileges in the use of docks and railways are given for the promotion of Polish commerce.

— From *Essentials of Geography, Second Book*, by A. P. Brigham and C. T. McFarlane.¹

¹ Copyright 1916, 1920, 1925, by the authors, American Book Company, publishers.



42. A TRIP THROUGH THE PANAMA CANAL

You have probably heard of the Panama Canal. If you do not know where it is, look it up in your geography. The building of this canal was a wonderful piece of work, and all Americans are proud of it.

If you were going through the Panama Canal in a steamship, what are some of the questions you would like to have answered? Before you begin to read the article, have these questions clearly in mind. The selection will probably answer many of your questions, but will also suggest other things about the canal that you would like to know.

After you have finished reading, discuss the questions with your teacher and classmates.

WE shall make a trip to-day in a steamship which will carry us across the Isthmus of Panama in a very few hours. The first white man who crossed the isthmus took twenty-nine days, because he had to cut through dense forests and fight Indians on the way. This man was Balboa, who thus discovered the Pacific Ocean and became famous as one of the world's great explorers.

The Isthmus of Panama is not very wide. If the country were level, one could walk across its narrowest part in a day, and with an airplane one could fly over the mountains from ocean to ocean in less than an hour. Yes, the isthmus is narrow, but until the United States built the canal from one side to the other, it formed a wall against the commerce of the world. Ships going from the Atlantic westward into the Pacific, or from the Pacific eastward into the Atlantic, had to sail many thousands of miles out of their courses in traveling around South America, and there was no short cut from ocean to ocean.

In 1879 some Frenchmen formed a company to cut a canal through the isthmus from one side to the other. Their plan was to make a sea-level canal, that is, a great ditch cut down to the level of the sea or ocean. Many thousands of men were employed, shiploads of machinery were brought across the ocean from France, and vast sums of money were spent.

But the work soon proved to be too great, and the money was all gone before one third of the canal was dug. Later, another French company took hold and continued the digging for a few years. It also became discouraged, and sold its property and its rights to the United States. That was in 1904, and within ten years from that time we had completed the canal that now connects the two oceans.

Our canal is not a ditch cut through the isthmus at sea level from ocean to ocean, such as the French company tried to make. The waters of the Atlantic and the Pacific oceans do not come together, and there is no salt water in the canal where it crosses the high land. This part of the canal is really a bridge across the land, formed by the fresh water of the Chagres (chä'grës) River. At each end of it there are gates in the canal to hold the water back, and locks by which ships are lifted up and let down. We shall see just how they work when we make our trip through the canal. The huge vessels steam in on salt water to the locks situated where the land rises on the Atlantic and Pacific sides of the isthmus. The fresh water is then let into the locks and lifts the vessels up, step by step, until they are raised as high above the sea as the roof of an eight-story building. They are then able to steam into the wide and deep canal which has been cut across the isthmus.

Then, by means of the locks at the opposite end, they are lowered gently to sea level again.

The canal cuts across the great mountain chain which runs along the western side of America all the way from Alaska to the Strait of Magellan. These mountains are lowest at the Isthmus of Panama. Where the canal crosses the mountains the land is only five hundred feet high, or about as high as the Washington Monument.

It is only forty miles from coast to coast, but from deep water in the Atlantic Ocean to deep water in the Pacific it is about fifty miles. The canal, therefore, has a length of fifty miles. It is from three hundred to five hundred feet wide at the bottom, and the depth is about forty-five feet. For twenty-four miles the channel winds its way through Lake Gatun (gä-toon'), whose surface is eighty-five feet above the level of the ocean. The lake is formed by the Gatun dam, which was built between two hills on the banks of the Chagres River. The dam holds back the waters of the Chagres, and by means of locks the ships are lifted up and let down so that they can pass into or out of the lake. On the other side of the lake a wide ditch was dug through the mountains so that the water in it stands at the same level as in the lake. This ditch is known as the Gaillard (gäl'ārd) cut. At the western end of it there are locks which raise and lower the vessels from and to the level of the Pacific.

The work of making the canal was enormous. We shall not realize how great as we sail through. Nature has clad the sides of the ditch and the dam with tropical plants and trees, and the canal now looks to be thousands of years old. It seems like a natural valley through hills unchanged since the creation of the world.

The Gaillard cut through the mountains required the blasting down and carrying away of so much earth and rock that it would equal a ditch three feet wide and seven feet deep reaching all the way around the world at the equator. The Gatun dam contains so much earth and rock that it would take twice as many horses as there are in all the United States to haul the stuff if it were loaded on wagons. The locks in the canal have twelve great gates made of steel, which weigh fifty-eight thousand tons, and each gate has two doors made of steel plates fastened together by more than six million rivets.

At times as many as fifty thousand workmen were employed on the canal, and in one year the food required for them included five million loaves of bread, nine million pounds of meat, one million pounds of onions, and one thousand carloads of rice. The cost of making the canal, including that of the forts for its defense, was over four hundred million dollars.

It is hard to realize the saving in time and distance created by this short cut from ocean to ocean. During our Spanish War we needed one of our battleships then in the Pacific to aid us in the Atlantic, and this vessel, the *Oregon*, had to steam from San Francisco to the southern end of South America and pass through the Strait of Magellan to come to New York. The distance that way is more than thirteen thousand miles. By the Panama Canal it is a little more than five thousand miles, and the saving in time is three or four weeks.

By the canal, Honolulu is seven thousand miles nearer New York than by the Strait of Magellan, and the saving in going to Manila is still greater. The west coast of South America has been brought almost into the front dooryard of

our Atlantic seaports. New Orleans is nearer to Peru than to any port of Great Britain.

But we shall get a better idea of the canal by making a trip through it on a steamship. Approaching from the Atlantic side, we steam past a lighthouse, and soon enter the canal. We steam on until, at seven miles from the lighthouse, we come to what, at first, look like huge forts of white stone with a long wall of green sod on each side of them. The wall of green is the Gatun dam, and what seem to be forts are really the mighty locks of concrete which will raise us by three steps to the level of Lake Gatun.

As we approach, the iron gate of the first lock opens and we steam into a chamber, the walls of which extend high above the deck of our vessel. The gate in front of us, which we find closed, is holding back the water of a higher level. Now the gate behind us closes. The water is let in through holes in the floor of the lock. It is boiling and bubbling, and our steamer is rising. The deck is soon high above the walls, and we are floating on the level of the water of the second lock chamber. The huge steel gate in front of us slowly opens, and our steamer is towed by the electric locomotives, which run along the top of the locks, into this second chamber. There are four locomotives. Two are fastened to the front of the vessel, moving it onward; and the other two are at the rear holding it so that they can stop it at the right time.

Now the gate has closed behind us. The water flows in from the bottom and again our ship rises until we are on the level of the third lock. We are towed into this, and in a similar way are raised to the level of Lake Gatun, eighty-five feet above the waters of the Atlantic.

The voyage across the lake is delightful, and our course winds in and out among beautiful islands.

Now we have crossed the lake and have steamed by the place where the Chagres River flows in. The canal has now narrowed to three hundred feet. We are entering the Gaillard cut where the greatest of the excavations were made. The hills are now high above us and we are in a narrow channel steaming along between sloping walls of the greenest of green. The rock and earth which once formed the banks of the canal are now covered with grass and flowers. Palm trees and fern trees have grown up here and there, and we are sailing through a garden of tropical wonders. There are but few marks of the steam shovels and other great machines which aided in digging this part of the canal.

We steam for nine miles through the cut, and then come to the lock of Pedro Miguel (pā'drō mē-gēl'). This time the lock is full of water when we enter it. The gate behind us is closed, and the water is slowly let out, dropping thirty feet to the level of beautiful Lake Miraflores (mē'rā-flō'rās), into which we steam when the gate in front of us is opened. This lake is much smaller than Lake Gatun, and we soon cross it to the locks on the opposite side, which, by two steps, lower us to the level of the channel through which we sail out to Balboa, the port on the Pacific Ocean. The sea beyond it is spotted with islands which stand like sentinels in front of the canal. A fort has been built upon one of them, and mighty guns are there to guard the canal. There are also forts on islands near the Atlantic entrance, and hidden forts in the jungle which lines the waterway in places, so that it will be easy to defend the canal in time of war.

— Adapted from the *New Geographical Reader, South America*, by Frank G. Carpenter.¹

¹ Copyright, 1899, 1912, 1915, 1921, by the author, American Book Company, publishers.

43. INDIAN CAPTIVES

You can learn to read rapidly by definite practice. It will do you no good, however, to read fast unless you get the meaning of what you read.

Do not begin to read this selection until you are told to do so by your teacher.

THE Indians seem to have kept on carrying the whites into captivity to the very end of the war, which closed with the Greenville treaty of 1795. As they had always done, they adopted some of them into their tribes and devoted others to torture. Nothing more clearly shows how little they realized that their power was coming to an end, and that they could no longer live their old life, or follow their immemorial customs.

The first captive in Ohio, of whom there is any record, was Mary Harris; she had been stolen from her home in New England when a child, by the French Indians, and was found at White Woman Creek in Coshocton County, Ohio, about the year 1750. When the last captive was taken is not certainly known, but two white boys were captured so late as 1791, and one of these was adopted by the Delaware in Auglaize County. His name was Brickell, and he was carried off from the neighborhood of Pittsburgh when nine years old. He wrote a narrative of his life among the Indians, and gave an account of his parting with them which is very touching. After the first exchange of prisoners, Brickell was left because there was no Indian among the whites to exchange for him, but later his adoptive father went with him to Fort Defiance, and gave him up. Brickell had hunted with the rest of the children and shared in all their sports and pleasures, and they now clung about him

crying, when their father told them he must go with him to the fort. They asked him if he was going to leave them, and he could only answer that he did not know. At the fort, his Indian father, Whingy Pooshies, bade him stand up before the officers, and then spoke to him.

“My son, these are men the same color as yourself, and some of your kin may be here, or they may be a great way off. You have lived a long time with us. I call on you to say if I have not been a father to you, if I have not used you as a father would a son.”

“You have used me as well as a father could use a son.”

“I am glad you say so,” Whingy Pooshies returned. “You have lived long with me; you have hunted for me; but your treaty says you must be free. If you choose to go with the people of your own color, I have no right to say a word; if you choose to stay with me, your people have no right to speak. Now reflect on it, and take your choice, and tell us as soon as you make up your mind.”

Brickell says that he thought of the children he had left crying, and of all the Indians whom he loved; but he remembered his own people at last, and he answered, “I will go with my kin.”

Then Whingy Pooshies said: “I have reared you; I have taught you to hunt; you are a good hunter; you are better to me than my own sons. I am now getting old and I cannot hunt. I thought you would be a support to my old age. I leaned on you as on a staff. Now it is broken; you are going to leave me; and I have no right to say a word, but I am ruined.”

He sank into his seat, weeping, and Brickell wept, too; then they parted and never saw each other again.

— From *Stories of Ohio*, by William Dean Howells.

44. FOREST FIRES

Millions of dollars worth of timber is burned every year in forest fires. These fires may be started by a very small spark, but they sweep over the forests for miles, burning the trees, killing animals, burning homes, and sometimes burning men and women. Most of this loss is unnecessary and is caused by carelessness.

More people go into the woods every year. From the cities and towns they pour out in trains and automobiles, all in search of the cool and pleasant forests. Many of these hikers and campers are not trained to take the precautions which all should observe. As a result great forests that furnish great summer playgrounds and that would build hundreds of thousands of houses are left ugly wastes of burnt stumps. The following notice is like one posted in the forests by the United States Department of Agriculture directing attention to the laws on this important subject.

Read the notice and —

1. Find out what the law forbids.
2. Memorize in your own words the care to be taken with small fires.
3. Give your own reason why forests prevent floods.
4. Give your reason why carelessness should be punished.

FOREST FIRES

The great annual destruction of forests by fire is an injury to all persons and industries. The welfare of every community is dependent upon a cheap and plentiful supply of timber, and a forest cover is the most effective means of preventing floods and maintaining a regular flow of streams used for irrigation and other useful purposes.

To prevent forest fires Congress passed the law approved May 5, 1900, which —

- Forbids setting fire to the woods, and
- Forbids leaving any fires unextinguished.

This law, for offenses against which officers of the FOREST SERVICE can arrest without warrant, provides as maximum punishment —

A fine of \$5,000, or imprisonment for two years, or both, if a fire is set maliciously, and A fine of \$1,000, or imprisonment for one year, or both, if fire results from carelessness.

It also provides that the money from such fines shall be paid to the school fund of the county in which the offense is committed.

THE EXERCISE OF CARE WITH SMALL FIRES IS THE BEST PREVENTIVE OF LARGE ONES. Therefore, all persons are requested —

1. Not to drop matches or burning tobacco where there is inflammable material.
2. Not to build larger camp fires than are necessary.
3. Not to build fires in leaves, rotten wood, or other places where they are likely to spread.
4. In windy weather and in dangerous places, to dig holes or clear the ground to confine camp fires.
5. To extinguish all fires completely before leaving them, even for a short absence.
6. Not to build fires against large or hollow logs, where it is difficult to extinguish them.
7. Not to build fires to clear land without informing the nearest officer of the FOREST SERVICE, so that he may assist in controlling them.

This notice is posted for your benefit and the good of every resident of the region. You are requested to coöperate in preventing its removal or defacement, which acts are punishable by law.

Secretary of Agriculture.



45. BUMBLEBEES

Almost every boy and girl who has been in the country during the summer knows the bumblebee. If you have ever been stung by one, you know him so well that you will never forget him. Possibly you have such questions as these that you would like to have answered.

1. Why is the bumblebee's sting so painful?
2. How and where do the bumblebees live?
3. In what respects are they like honey bees?
4. What are they good for?

Read the following article carefully to see if it answers your questions.

What is the most interesting fact that you have learned about the bumblebee?

ONE winter when it was bitterly cold the snow was so deep one could drive anywhere without paying much attention to fences or ditches. My brothers and I each day took the bobsled to the cornfield for a load of fodder to feed the cattle. I particularly remember one of these trips for two reasons. First, my ear got so frosted that I thought I would have to go to the house and leave the work to my older brothers (I was then only about eight years old); second, just as my courage was all but gone, and I was ready to try to wade home through the deep snow, my brother John pulled an armful of fodder from the shock and out rolled a great bumblebee as stiff as a poker, and apparently as lifeless. John picked it up and began to blow

it into life in his hands. Soon we heard a feeble buzz. As I could not bear the thought of throwing it down to perish in the snow, caring for it gave me something to think about till we got home, so that I forgot my own troubles.

After we took the bumblebee into the warm kitchen, it was not long before it was able to fly about the room. I do not remember what became of this insect, which was a queen, though I did not know this at the time. But when she found that spring had not yet come, she probably crawled away into some corner of the house, or crept into some other hiding place, there to sleep until spring arrived. Up to this time, bumblebees had been among my bitterest enemies. We were at open war from early spring until late autumn. I hardly think I was a fair foe, however, for I was more of a pirate or robber than a soldier. In this warfare I had found that bumblebees were armed each with a good sharp spear and were fighters by nature.

You may be interested in knowing just what kind of weapon their spear is. It is made of two slender shafts tied tightly together and forming a very sharp point. On the inner edge of each shaft are notches that fit into each other; and at the base of each shaft are muscles that control them. When the bee makes an attack and inserts the point of the spear, or sting, into an enemy, the muscles first force in one shaft and then the other, the notches holding all that is gained, and thus the sting is quickly inserted to its full length. At the base of the sting are sacs of poison. When the sting has been inserted deeply, the bee presses on these bags and causes the poison to run down a groove in each side of the sting, which places the poison deep in the flesh of the victim, causing the pain and swelling so well known to every one who has ever been stung. The bumblebee

sting is sharper than the sharpest needle and is fully half an inch long.

These bees are wise creatures. They always strike for the face and especially for the eyes. If unable to strike the face, they often do not strike at all. They are not so particular about this, however, as is our common honeybee, which may be because the bumblebee seldom leaves his sting in the victim, and so can strike again and again without losing its own life, while the honeybee always leaves its sting and so loses its own life, provided it makes a fair strike. Perhaps it is wise enough to reason that, if it must give up its own life, it will at least try to save its country, the hive, from destruction, by blinding the enemy.

That poor half-frozen bee of so many winters ago gave me an interest in getting acquainted with bumblebees, and, as is almost always the case with those whom we dislike, when I became acquainted, I found that, instead of being enemies, bumblebees had been among my best friends all the time. As I gradually came to realize this, I ceased my warfare or piracy entirely; and since I was fourteen years old I do not think I have ever helped to destroy another nest. I must now tell you some of the things I learned about Mrs. Bumblebee. The bee that gave me my first genuine interest in her race was the first insect I had ever known to hibernate, for that was what father told me she was doing in that corn shock. Of course I had to be told what the word meant, and I will explain it to you, for I have since learned that most of the little peoples who live in the cold parts of the earth hibernate. This means that on the approach of winter they creep into some dry place where there will be little change of temperature and fall into a deep sleep. They neither eat nor breathe, yet they are not dead, but

remain in this condition till the warm spring returns, when they awaken and go about their business just as though nothing had happened.

My bee, in case she lived after what had happened to her, probably awakened with the return of the flowers, crawled from her hiding place and went forth seeking a place in which to build a home. Perhaps she found an abandoned mouse nest, either in a meadow or possibly in a hollow stump or between the walls of some outbuilding. Then she would have overhauled the abandoned nest, making it as clean on the inside as a parlor, and so prepared the outside as to make it waterproof. A single opening about an inch in diameter would have been left toward the bottom of the nest through which she could have entered as the door to her home.

When all was ready for housekeeping, she doubtless made a sort of wax which she mixed with bits of hair or veins of grass, and spread it over a small part of the floor of her nest. On this she placed a mass of pollen mixed with honey, both of which she had gathered from flowers. In this she laid three or four eggs. Every day she continued to gather pollen and honey, adding to the mass, until she had more than was needed for food by the first lot of babies when hatched from the eggs, and then would lay more eggs. Her eggs hatched in three or four days into small white grubs that at once began to eat the pollen and honey. Each ate at a place a little separated from the others, and soon every one began to spin the base of a fine silken cell. As the young grub grew, it enlarged this cell until, when ready to turn into a pupa and go to sleep, the cell was over an inch long and as thick as your thumb. As fast as these cells grew, the mother bee strengthened them with bits of hair or

pieces of leaves or grass, mixed with wax, making the walls strong, and binding them into an irregular comb. All this time she had to go far afield every day to gather her own food and to get more for other babies as they were hatched.

As soon as she had a family of two or three workers ready to go afield, she remained at home and attended to her household. This she did partly to protect her future children, for hard as bumblebees work, and tenderly as they help growing grubs to build their cells, they will do everything they can to get newly laid eggs; and if they get one will eat it. A queen must stand guard over her eggs constantly until they are hatched, and at times has to fight hard to keep her grown-up children from eating them. Yet no sooner does she become the mother of laying queens, which she does before the summer is half over, than she is just as anxious to eat their eggs as they are to eat hers. Sometimes there are ten or fifteen laying queens and scores of workers in a single nest. They certainly are kept busy watching their eggs; yet the queens never come to hard blows, for the would-be thief, if caught, seems to realize that she is in the wrong, and so lacks the courage of one who knows she is in the right.

The growth of a colony makes necessary the laying up of a supply of food for use on rainy days or on days too cold for bees to go out for supplies. Bumblebees seem to know they can not remain in their homes during the winter, and so do not lay up more honey than they would use in a week or ten days. The most that I ever found in a nest was about a fourth of a pint, while many nests only have one or two cells, or perhaps a half teaspoonful of honey. But the sweetest honey that ever tickled the palate of a dirty-faced hungry boy is bumblebee honey, squeezed from the cell into

a grimy hand, and licked up while watching to see that some returning worker does not sting him unawares.

As soon as a colony has increased to a dozen or two members, should the night be warm and the moon shine brightly, the members work all night. Unlike honeybees, who never sleep, they take advantage of dark or cold nights to sleep, as it is too dark to go afield. They now show one of their most interesting traits. They appoint a night watch, who is not allowed to sleep at night, and quietly creeps about over the brood to make sure that all is well, until about three or four o'clock in the morning, when, as the first trace of dawn begins to light up the eastern sky, she sets up a loud trumpeting sound, produced doubtless with her wings, and awakens the sleeping colony to activity. The same bee acts as night watch as long as she remains in the nest, but if she is removed, another bee will be found in her place at the following dawn, and will awaken the whole industrial city. Just who it is that settles upon the task each bee is to take up, and how the appointments are made known, would take a wiser head than mine to find out.

As winter approaches, new queens are reared and immediately leave the nest to seek a mate in the clear blue sky. Then they fly far from the old home and often creep into some such place as did the bee of that corn shock, so many winters ago, and there go to sleep for the winter. I have known several to crawl into a single hollow log in an old house, making sure that the entrance was too small for a mouse to get in. In splitting wood in the winter one sometimes finds a bumblebee in some such little hollow in an old log or in a tree trunk. Bumblebees seem to know full well that should they go to sleep in their nests on the ground, they would be eaten by some hungry mouse long before the winter

ended. Mr. Mouse is wise enough to keep away from a nest as long as the bees are awake and able to defend themselves; but he marks them well, and no sooner is he sure that they have been stiffened by the cold, than he boldly raids the nest and eats everything, — bees, babies, honey, and all.

I have not told you why bumblebees are our friends. Red clover is one of the most valuable crops we grow on farms, both as hay for cattle and as a means of improving land. But the bloom of this plant is so constructed that it can not make seed if left to itself. The pollen grows near the top of the tubular, pea-shaped blossom, while the pistil is near the bottom, under a fold in the flower. But the pollen grains must reach this pistil before a seed can be produced, and the pollen, if it falls off itself, will not fall under this fold in the flower. Clover well understands its own helplessness, and so has hired the bumblebee to place the pollen on the pistil. Like a wise employer, it never pays until the work is done, but always has the cash ready when the job is finished. I suppose clover is not so particular about who works for it, but the bumblebee is almost the only one of the little folk who has the proper tools with which to do the job well.

Down under the pistil, in the lowest end of the clover flower, lies the bee's pay for his day's work, — a drop of the very best and sweetest honey you ever tasted. His tools consist of a long tongue and a hairy, awkward head. To get at the honey, he must crowd his awkward head into the flower, which knocks the pollen out of its cell, and a part of it falls to the lower part of the flower. When the bee pokes out his long tongue to lap up the honey, he can not help pushing a few grains of this pollen on to the pistil, and then the flower can make a seed.

Some years ago people in Australia thought it would be fine to grow clover in their country. They sent over the seas and got clover seed, but the despised bumblebee was left behind. He was thought to be a cross, ill-tempered old bungler, of no use to any one. The clover grew nicely enough, but never a seed would it produce. Cultivate it as best people could, it simply would not make seed, and as clover lives only two years, they soon had no more than they had before. The clover was not to blame that there was no help in Australia to put pollen on its pistil. Then men began to study the matter, and finally sent for more seed. This time they got a few bumblebees, too; the seed was sown, and the bees well cared for till the clover was in bloom, when they were turned loose in the field, recognized their old friend, and went to work. Soon the clover was making seed as well as it did in its old home.

— From *Knowing Insects through Stories*, by Floyd Bralliar.¹

¹ Reprinted by courtesy of Funk and Wagnalls Company, publishers.



46. ALEXANDER GRAHAM BELL

Great inventions are rarely made unless as a result of long, patient study or of special knowledge. Inventions do not result from mere chance.

The life of Alexander Graham Bell is a good illustration of this. Read carefully the story of how the telephone was developed. Make a list on paper of the things that interested Bell and of the various experiments that led finally to his discovery of the telephone.

AMONG all our great inventors no one deserves more credit than does Alexander Graham Bell, for it was he who gave us the telephone. Credit for this invention is sometimes given by mistake to Thomas A. Edison, which is not strange as he is the inventor of the phonograph and has provided us with so many of our everyday conveniences that some people hardly think of giving credit to any one else for anything.

The telephone was the result of many years of work on the part of Bell, who when only a boy began working on different instruments which led up to this great invention.

Bell was a Scotch lad; he was born in 1847 and died in the fall of 1922. He and Edison were boys at the same time. He was given the usual education in high schools and college, but his chief interest was in music. He tells us that he could play the piano before he could read or write. He could play all sorts of musical instruments when only a child, and he knew how all of them were made.

His father was a teacher of elocution, and also taught people how to correct defects of speech. Persons who lisped

or stammered came to him and learned to overcome these bad habits.

Alexander Graham Bell, his father, and his brother studied everything they could find which related to the human voice.

“One day,” says Bell, “my father proposed to his boys that they should try to make a speaking machine. The work was divided up between my brother and myself. He was to make the lungs and the throat, and the vocal cords, and I was to undertake the mouth. I made a mouth modeled from a skull. My brother had finished his larynx about the same time that I had made the mouth, and it was a great day when we put the two together. We did not wait for the wind chest that was to represent the lungs, but we stuck the thing together. My brother blew through the tube, and I took the lips of my machine and moved them. Out came a sound like that of a Punch and Judy show, and we were delighted when we moved the lips up and down to hear ‘Ma-ma! Ma-ma!’ distinctly.

“My father used the machine to impress upon us the mechanism of speech, but we cared more for the effects produced. I remember very well one time, when my brother and I took this machine out to the common stairway at Edinburgh. My brother blew, and there came a sound like a regular squalling baby, ‘Ma-ma! Ma-ma!’ in a most distressing tone of voice. Then we were perfectly delighted to hear a door open upstairs and some person come out. When we made it cry for all it was worth, we heard some one say, ‘My goodness! What is the matter with the baby?’ That was just what we wanted. We crept into our own house softly and left our neighbors to look for the baby.”

Bell continued to work with his father and his brother until he was sixteen years of age, when one day he heard of

a man who had set tuning forks into vibration by means of electricity. He did not have a clear idea of just what the man had done, but from this grew the idea of the telephone. If tuning forks could be set into vibration by electricity, why not an instrument to imitate the human voice?

Soon after this he removed with his family to Canada, where he spent several months quietly working on a farm, as his health was not of the best. He was not, however, interested in farm work; and when in 1871 an opportunity offered, he went to Boston and began teaching in a school for the deaf and dumb. He liked this work greatly and began devising a system for teaching the deaf to talk. He succeeded well with this, and deaf children from all over the country came to him to be taught to speak. To-day there are many schools where deaf children are taught to speak and to read the lips of others and to seem like other children, but before the time of Bell there were none.

For many years, also, Bell worked on an instrument which he called the multiple telegraph, which he thought would be a great improvement on the telegraph instruments of the time. He taught by day and worked at his invention by night. He had fitted up a workshop in the attic of the home of one of his pupils, George Sanders, and here he spent every moment which he could spare from his teaching.

“Often in the middle of the night Bell would wake me up,” said Thomas Sanders, the father of George. “His black eyes would be blazing with excitement. Leaving me to go up to the attic, he would rush wildly to the barn and begin to send me signals along his experimental line. If I noticed any improvement in his machine, he would be delighted. He would leap and whirl around in one of his ‘war dances,’ and then go contentedly to bed. But if the experi-

ment was a failure, he would go back to his bench and try some different plan."

But Bell was also working on an instrument which would make sound pictures for the deaf and this led directly to the telephone as we first had it. Bell tells us about it himself. "As I was holding a human ear in my hand, it struck me that the bones of the ear were very massive as compared with the membrane. The membrane was like a little piece of tissue paper, hardly the size of a finger nail, and the bones that were moved by the membrane were really very heavy. It suddenly occurred to me that if such a small membrane as that would move bones so massive in comparison, why would not a larger membrane move my piece of iron?" He worked out the idea and the result was a speaking telephone. When he had the first telephone made, he was twenty-nine years old.

At first little attention was paid to this great invention, as people at that time knew very little about electricity and its possible uses. It was placed on exhibition at the Centennial Exhibition in Philadelphia in 1876, but it was only by accident that it came to be noticed.

On Sunday, June 25, the electrical instruments were to be shown to the judges. Dom Pedro, Emperor of Brazil, Sir William Thompson, the greatest electrical scientist at that time in the world, and other famous people were to be there. Bell himself tells us the story.

"On that Sunday I went out to the exhibition, having been persuaded with the greatest difficulty to do so. There were a lot of electrical exhibits to be shown and the poor judges were trotted around to see one thing after another until they were ready to drop. I followed the judges around while they looked at this thing and that thing. Finally my

turn came, but the chairman then said that they would postpone further examination of electrical apparatus until another day. That meant they would never see my telephone. The judges began to disperse, when suddenly Emperor Dom Pedro saw me, and recognized me as the young man whom he had met in Boston in the school for the deaf and dumb. He came up to me and asked, 'Mr. Bell, how are the deaf-mutes in Boston?' I told him that they were very well and that my exhibit was the next. He said he must go and see it, and took my arm and walked off with me, and of course the judges followed like a flock of sheep. My exhibit was saved."

The instruments were ready for use. Dom Pedro took a seat at the table on which rested the little iron-box receiver, and was asked to hold his ear near the top of the strange little instrument. Bell sat down in another room and spoke slowly and with great distinctness into the tube of the transmitter. Dom Pedro, of course, did not know what to expect nor did any one else in the room. Suddenly the Emperor raised his head amazed, and exclaimed, "It talks!" Then came Sir William Thompson, who knew so much about electricity; he listened to the little iron disk talk with a human voice. Then with great emphasis he said: "It does speak. It is the most wonderful thing I have seen in America. It is the greatest marvel hitherto achieved by the electric telegraph. Before long, friends will whisper their secrets over the electric wire!"

When Sir William Thompson spoke, the world believed.

"I went to bed the night before," said Bell, "an unknown man, and awoke to find myself famous. I owe it to Sir William Thompson, back of him to Dom Pedro, and back of him to the deaf-mutes of Boston."

47. RADIO

All of you have heard a radio. Many of you have radios in your homes. But what do you know about the invention of the radio? And how many know how the sound of an orchestra or the voice of a singer or speaker in a broadcasting station is reproduced in your home, perhaps more than a thousand miles away? This selection will tell you part of the story. Read carefully.

RADIO, as we know it to-day, is the result of many different discoveries and inventions. The beginning was made by James Clerk Maxwell, a Scotchman, who, a little after 1870, brought out his theory of electro-magnetic waves as an explanation of heat and light. It had long been known that sound is the result of air waves vibrating more than twenty and less than twenty thousand times a second, and that most persons are not able to hear vibrations at rates outside these limits. It is also known that light waves and heat waves vibrate many billion times a second. One part of Maxwell's theory is that there are also electro-magnetic waves which vibrate too slowly to be seen as light or to be felt as heat.

Following Maxwell's work in 1886, Heinrich Hertz, a German professor, made some apparatus that produced these waves and helped to prove the theory. His method of producing these waves laid the foundation for modern radio.

A number of scientists experimented with the Hertzian waves, and Guglielmo Marconi, an Italian, brought out his

first invention in wireless telegraphy in 1896. His first messages were sent over a distance of about one hundred yards, but he soon extended the range to ten miles.

In the meantime Sir Oliver Lodge, an Englishman, had discovered the fact that these wireless messages could be 'tuned' to different wave lengths. There are Hertzian waves of all lengths from one meter to thirty thousand meters or more. "Tuning" means the use of a certain wave length, say three hundred meters for example, instead of using waves of all lengths together. Marconi found that by tuning his messages he could send them much farther. The result was that, after more experimenting, he was able, on December 12, 1901, to send the first wireless message from England to St. Johns, Newfoundland.

This was wireless telegraphy. The message was a series of short and long buzzes used like the dots and dashes of the old-fashioned Morse telegraph. Many further experiments and inventions were made before we could have radio, or wireless telephony. The main difficulty was that the vibrations of radio waves are at such a rate that they cannot be perceived by our senses: they are too rapid for us to hear and not rapid enough for us to see.

Professor John A. Fleming saw that if we ever were going to have a wireless telephone, we should need some sort of apparatus like a valve which would cut down these very fast vibrations, at "radio frequency," to vibrations we could hear, that is, at "audio frequency." For this purpose he brought out, in 1904, an improved form of a two-element electric lamp, which had been invented by Thomas A. Edison. Two years later Dr. Lee DeForest invented his three-element audion, a kind of radio valve, or "tube," that is wonderfully sensitive.

The many kinds of radio receivers differ from each other in many ways, and use hundreds of different inventions made since 1900. For some years people had to sit with a kind of telephone receivers on their ears to hear radio concerts. Then came the invention and development of the modern loud speaker, which sounds radio concerts almost as clearly and naturally as if the artists were in the same room. Indeed, the proceedings of the national party conventions of 1924 — the first to be broadcast — were heard more distinctly over the radio than by most of the persons actually present in the conventions.

Now that we have seen how radio has developed, let us take a glance at how radio "works"; at the various things that are necessary before the voice of a singer in the broadcasting studio can be carried through the air and come to us so clearly from our loud speaker.

When we throw a stone into a calm pool of water, little waves spread out in an expanding circle on the surface of the water. When we shout to some one across the street, we send out sound waves which spread in all directions like an expanding spherical shell. The waves fade out gradually as they travel on. Every one within reach of these waves, in any direction, hears what we say. Somewhat the same thing happens in radio broadcasting. But the sound waves set up by a human voice could not carry even one mile unassisted, while the radio broadcasting range is hundreds or thousands of miles. The voice must be helped, somewhat as it is in ordinary telephoning, by being translated into electrical waves, which are later re-translated into sound waves. But instead of sending these waves along a wire, the broadcasting station sends out Hertzian waves, which spread out in all directions like a series of rapidly

expanding spherical shells. These high-frequency waves are called the "carrier wave," and the process of impressing sound waves upon it is called "modulation." The modulated carrier wave travels out in all directions at a tremendous speed, about one hundred and eighty-six thousand miles or three hundred million meters a second — the same speed for all Hertzian waves as for light. This speed would take them around the entire earth more than six times in a single second.

When the modulated carrier wave strikes your loop or aerial, it induces currents that travel through your receiving set and, after being amplified or strengthened, are translated back again into the sound waves which you hear from your loud speaker.

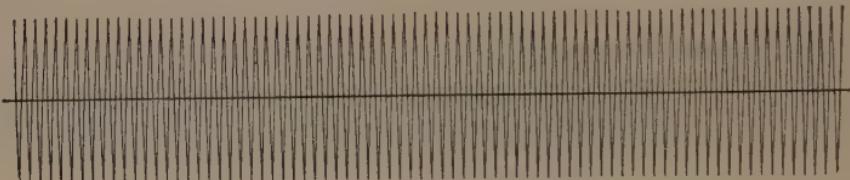
How is all this accomplished? Let us see if we cannot trace the voice of a singer through the different processes from the time he sings in the broadcasting studio to the time when you hear the voice from your speaker.

The singer stands near a microphone, in which there is a thin steel disk. As the sound waves strike this disk, they cause it to vibrate at varying speeds — now fast, now slower — according to whether the note sung is a high one or a low one. The vibrating of the steel disk varies the strength of an electric current passing through the microphone, and causes this current to assume, in a way, the characteristics of the sound waves themselves. This electric current is amplified or strengthened and is passed on to modulate the carrier wave.

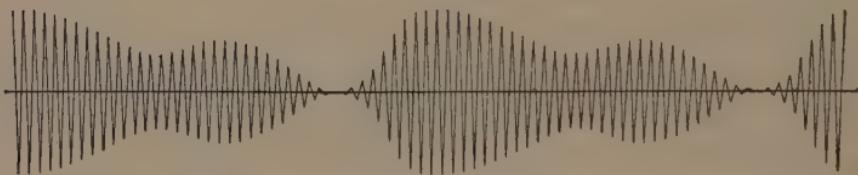
The carrier wave is being sent out in all directions from the transmitting antennae or wires on top of the station. It is vibrating many thousand times a second, according to the wave length of the station. If you interrupt that

wave entirely, it stops. If you only partly interrupt it, it still vibrates at the same speed, but not so strongly.

This is just what the amplified current from the microphone does. It interrupts, or partly interrupts, the carrier wave, according to whether its own vibrations are strong or weak. It makes scores or hundreds of interruptions a second, according to whether the tone is low or high in



VIBRATIONS OF A CARRIER WAVE



THE SAME VIBRATIONS MODULATED BY A SOUND WAVE

pitch. The above diagrams represent in a simple way the vibrations of a carrier wave, before and after modulation.

As the current from the microphone represents the sound waves of the singer, the radio waves that strike our receiving loop or aerial carry impulses of the same frequency and relative size as the original sound waves created by the singer in the studio.

Now, how does our radio set turn these electrical waves back into the sound waves that we hear? First, their effect must be amplified, for the waves which reach our loop or aerial are very weak. It has been estimated that all the

energy received in the average aerial from the average broadcasting station during a period of twenty years would amount to less than the energy expended by a common house fly in climbing up a wall a distance of one inch. So the currents set up in this loop or aerial are transformed into stronger currents, and also they are put through a process that practically brings their pulsations back to the frequencies of the sound waves in the broadcasting studio. This is done by a tube called the "detector." Even yet the electric current is very weak; so it is amplified again by other tubes and more apparatus.

As we cannot hear electric currents, we must use either ear phones or a loud speaker to turn the current into sound waves again. As the electric current, similar in its pulsations to the sound waves of the singer in the studio, passes through the coils of an electro-magnet in the ear phone or speaker, it causes a diaphragm to vibrate, agitating the air about it and creating the sound waves that we hear.

When an address or a program of music is broadcast by more than one station at the same time it is usually transmitted to the various stations by telephone wire.

By a series of long-distance telephone lines and a radio station on each side of the Atlantic Ocean, a notable advance in the use of the radio was made in 1926. Late in that year ordinary telephone conversations were made possible between America and England,—just twenty-five years after Marconi's first trans-Atlantic wireless telegram,—and the regular commercial use of this trans-Atlantic telephone service was begun early in 1927.



48. NAVIGATION OF THE AIR

This article points out some of the reasons why navigation of the air is more dangerous than navigation of the sea. After you have read this selection carefully, list on paper the various dangers which pilots of the air must meet.

MODERN science has robbed the navigation of the sea of many of its dangers. When an ocean liner leaves the harbor, the captain has before him a chart showing the varying depth of the water his ship will travel, the location of hidden shoals and rocks, and the location of lighthouses, buoys, and beacons, so that he can follow his course with accuracy and safety. In addition he has information concerning the direction of ocean currents, and he receives frequently information by wireless telegraph concerning coming storms and dangers of any kind. The United States government assumes the expense of furnishing most of the assistance.

Contrast the safety of modern ocean travel with the dangers which confronted Columbus when he set sail in his tiny ships. He had no accurate charts to guide him nor any precise instruments of navigation, nor government reports to warn him of coming storms. In a word, men knew little about navigation of the sea in those early days.

Like the sailors of long ago, those who sail the air in the modern airships have very little knowledge of the dangers of the air. Just as uncharted rocks and hidden reefs are the treacherous hazards of the sea, so local storms on the land imperil the airman. Such a storm caused the wreck of the airship *Shenandoah* in 1925. The lesson it brings to the airmen is the need for better charting of the skies.

Every kind of land structure, every change in the surface of the land causes varied air currents above. Over the surface of a lake which reflects heat waves we find a rapidly rising current of air. A grove of trees absorbs heat waves and causes a downward current. A person driving an automobile in the country can easily observe the difference of the air coming from different kinds of land surface. When he passes a green field, he will find the air noticeably cooler, but when he passes fields that have just been plowed or are barren, he will feel a warmer current. Yet very little is known of the region above us.

It is true that there are weather reports which forecast the coming of storms, but these are designed for the assistance of farmers and landsmen and are broadcast only morning and evening. A storm may arise within an hour. No present government service meets the demand of the airship pilot for an hourly report of weather conditions in the air.

Electrical storms are the airship's greatest danger. Such storms cause rapidly changing air conditions which subject the structure of an airship to extremely violent and dangerous forces. Electrical storms are generally confined to certain areas and usually occur at certain periods of the year. They usually follow a definite track. It should, therefore, be possible to chart the disturbed areas and tracks of these storms, so that air pilots may avoid serious danger by know-

ing what parts of the air are likely to be free from storms. To detect the violent thunder storms that take place high in the air and to measure their direction and distance, a new instrument is needed, just as we have an instrument which detects earthquakes.

The United States government is already making a great many investigations to add to our knowledge of air conditions high above the earth. Every day at army and navy air stations throughout the world small rubber pilot or sounding balloons are inflated with gas and released in order to ascertain conditions of the atmosphere at varying heights above the earth's surface.

Pilot balloons are also used for carrying high above the clouds instruments which measure heat, air pressure, and the amount of moisture in the air. Devices have been invented which will automatically record the measurements of these instruments so that when the balloon comes to earth again it is possible to tell how high it has been, and how cold the air was at each height, and what amount of moisture the air contained. Records show that altitudes of 90,000 feet or eighteen and one half miles have been reached by this means. One exploration recorded a temperature of 86.9° below zero at an altitude of 32,240 feet.

As the balloons rise into the thinner air above, the gas expands, causing a steady stretching of the rubber. These pilot balloons have to be very carefully made in order to withstand this great strain. In rising, a balloon expands approximately one thirtieth of its volume every thousand feet, so that at 10,000 feet the gas needs one-third more space than it does at the time of release from the ground level; and at 30,000 feet the balloon must be twice as big in volume as its original size. When continued expansion

brings a balloon to the limit of its strength, the rubber gives way and the balloon bursts.

The rate of ascent of a pilot balloon is known, and at every thousand feet the angle which the balloon makes with the point of release on the ground, and the direction of travel, is measured by a special instrument. From readings of the angles, combined with the computed height of the balloon, the wind speed and its direction may be determined.

It is said that in a few years transportation through the air will become well established. If this is to be the case, there must be a great increase in our knowledge of air conditions, and instruments and devices must be invented which will make possible a science of air navigation.



49. INDIAN FIGHTERS

This is a selection that will give you practice in learning to read rapidly. Remember, however, that it is more important to get the facts than to read fast.

Wait for your teacher's directions before you begin.

ADAM POE and Andrew Poe were brothers whose names have come down in the story of deadly combats with the savages. They are most renowned for their heroic struggle with a party of seven Wyandot Indians near the mouth of Little Yellow Creek, in 1782. The Wyandots, led by a great warrior named Big Foot, had fallen suddenly on a settlement just below Fort Pitt, killed one old man in his cabin, and begun their retreat with what booty they could gather. Eight borderers, the two Poes among them, followed in hot haste across the river into the Ohio country, where the next morning Andrew Poe came suddenly on Big Foot and a small warrior talking together by their raft at the water's edge. They stood with their guns cocked, and Poe aimed at Big Foot; but his piece missed fire. The Indians turned at the click of the lock, and Poe, who was too close to them for any chance of escape, leaped upon them both and threw them to the ground together. The little warrior freed himself, and got his tomahawk from the raft to brain Poe, whom he left in deadly clutch with Big Foot. Twice he struck, but Poe managed each time, by twisting and dodging, to keep his head away from the hatchet; and, as the warrior struck the third time, Poe, though badly hurt on the arm by one of his blows, wrenched himself free from Big Foot, caught up one of the Indians' guns, and shot the

little warrior through the breast. Then Big Foot seized him again, and they floundered together into the water, where each tried to drown the other. Poe held Big Foot under the water so long that he thought he must be dead, but the moment he loosed his hold upon his scalp lock the Wyandot renewed the fight. They presently found themselves in water beyond their depths, and let go to swim for their lives. The Indian reached the shore first, and got hold of one of the guns to shoot Poe, but luckily for Poe it was the gun he had fired in killing the little warrior.

Adam had heard the shot, and he now came hurrying up. His gun was empty, too, and it was a question whether he or Big Foot should load first; he shot the Indian as he was lifting his gun to fire. But Big Foot was not killed, and Andrew shouted to Adam not to mind him, but to keep the Indian from rolling himself into the water. Big Foot was too quick for them; he got into the current, which whirled him away, and so saved his scalp in death. About the same time another of the party who came up took Andrew Poe for an Indian and shot him in the shoulder. Poe got well of his wounds and lived for many years, proud of his fight with Big Foot, who was a generous foe, and had often befriended white captives among his tribe.

It is told of Adam Poe that five Indians, all rather drunk, once came to his cabin, and tried to force the door open. He sent his wife with the children out into the cornfield behind the house, remarking, "There is a fight and fun ahead," but when he saw the state the Indians were in, he did not fire at them. He fell upon them with his fists, knocked them all down, and then threw one after another over the fence, and the fun was ended.

— From *Stories of Ohio*, by William Dean Howells.

50. THE RULES OF HEALTH

Do you really wish good health? People who have lived long would say that it is more to be desired than riches. Most people keep out of hospitals, but the health that is most worth having does more than that. It gives you your whole self to put into your work and play every day. What is the good of being half well? A headache, or a cold, or a tired feeling often spoils a day.

Usually you can be well if you choose to. Theodore Roosevelt was a weak, sickly boy, but by trying to be well he came to be a strong man full of zest for an unusually active life. He wished so much to be well that he was willing to follow the rules of the health game.

Read the following rules carefully and tell —

1. Which rules you observe.
2. Which rules are hard to follow.

IF you were to buy an automobile, you would get with it a book of directions which would tell you how to make it serve you well. An automobile's chief needs are fuel, oil, water, and cleaning at regular intervals. Unless it gets these there is sure to be trouble. These are the chief needs of the body also, but it needs one thing more, — regular rest.

You will remember that Franklin said, "Early to bed, early to rise, makes a man healthy, wealthy, and wise." This is still true. Get up in time to have a brisk bath, a quick but careful dressing, and a substantial breakfast. Drink a glass of water before your bath. This helps to cleanse the inside of the body. A good breakfast should include fruit, warm cereal, toast, and milk or cocoa. Add an egg, if you like, but no coffee or tea. They are not real fuel. Breakfast should be eaten even if you are not hungry, because your body has had no fuel for over twelve hours.

The three meals should be eaten at regular times each day. Sometimes a mid-morning lunch is good, consisting of fresh fruit, or crackers and milk. The day's fuel should include milk surely, cereals, bread, one or more vegetables, meat or eggs, and fruits. Candy in moderate amounts should be taken only after meals, and not then unless the regular food has been eaten. Eating candy before meals spoils the appetite. We often should eat certain foods though we do not crave them, because the body needs their help. A variety of vegetables is necessary. Sodas, ice cream, and cake are tempting but should not be taken between meals. The stomach needs to rest then. If it does rest, we have an appetite at regular times and enjoy our food. Irregular eating gives us headaches, a tired feeling, and often results in a bad disposition.

Food is not all, however. Our bodies need regular rest and plenty of it. Ten hours' sleep at night for pupils of the sixth grade is not too much. After meals a half hour spent quietly helps the assimilation of food. Sleep is especially welcome if it follows exercise in the open air, of which we need as much as we can get. Our bedrooms should be quiet, unlighted, cool, and the windows should be wide open.

Keep the body clean, inside and out. The pores on the skin should be kept open with a daily bath. The inside of the body needs from four to six glasses of water a day. Clean nails and hands before eating. The teeth need to be cleaned each night and morning at least. Bad teeth make a sick body and result in painful trips to the dentist. Remember that the teeth are to be used in chewing the food.

If you choose this day, health will surely be yours.¹

¹ Reprinted by permission of the Parent Teachers Association, Horace Mann School, Columbia University.

51. HOW TO STUDY GEOGRAPHY

When you study geography, do not always try to remember everything that the book tells you. Think about what you read, select the facts that seem more important, and try to fix these in your memory.

The selection printed below is taken from a textbook in geography. You will notice that it is divided into four topics. After you read carefully what is said about the first topic — physical geography — stop and think about what you have read and decide upon the important points. They might be the following:

The most northern parts of Italy are mountainous. From these mountains flow many rivers, forming beautiful lakes and making wonderful scenery. The largest river, the Po, makes fertile plains. To the south, the Apennine range extends the whole length of the peninsula. Much of this part is mountainous, leaving some rich lowlands along the coast and the rivers and forming a few basins of rich land high among the mountains. There are two islands belonging to Italy; they are Sicily and Sardinia.

In a similar manner read what is said about each of the other main topics, and try to summarize the important points. Consult a map whenever necessary.

After you have studied the whole selection, try to find good questions for further study; for example, "Why should Italy be so much warmer than the northern part of the United States?"

Physical Geography. The most northern parts of Italy are among the southern slopes and peaks of the Alps. Many rivers rise in the glaciers and snow fields, and flow down the slopes and across the plain into the river Po. On their way, some of them pass through beautiful lakes bordered by mountains. These Italian lakes are much visited for pleasure and recreation. Several railroads come

through long tunnels or across passes and connect Italy with the rest of Europe.

The Po is the chief river of Italy, and it is bordered by fertile plains. It spreads the fine rock waste of the Alps over these plains in time of flood. It has built its delta out into the Adriatic Sea so rapidly that some towns that were on the sea border two thousand years ago are now several miles inland. Smaller tributaries flow into the Po from the Apennines on the south.

In the west, the main Alpine range bends to the south, and joins the Apennines. The Apennines extend the whole length of the peninsula of Italy, and in parts of the peninsula the mountains and hills occupy nearly its entire width. There are small lowlands on some parts of the shore and along the rivers, among which are the Arno and the Tiber. There are also small basins of flat and rich land high among the mountains. The largest river, next to the Po, is the river Tiber, on the banks of which stands the city of Rome. The ancient Romans called it the "yellow Tiber," because it was muddy and discolored, as it is now, by the land waste brought from the mountains of the interior.

Much of the island of Sicily, which belongs to Italy, is mountainous, but owing to good soil and a warm climate, the small lowlands are very productive. The island of Sardinia, which also belongs to Italy, is very rugged and is unproductive except in minerals.

Climate. Italy is as far north as our northern states, and yet has a mild climate, and in the south is so warm that many tropical fruits and palms flourish. The basin of the Po is well protected from cold north winds by the great Alpine mountains. The shores of the peninsula and the islands are washed by the warm Mediterranean waters.

Winds from these waters blow inland, and except in the higher mountains there is rarely frost.

Most of the rainfall is in the winter, when it is not helpful to crops. In the summer the peninsula is in the belt of the northeast trade winds and has little rain. Hence, irrigation is much used. In the Po basin there is more rain, but the plentiful water of the rivers also is employed to irrigate the fields, because in this way two or more crops can be raised in one season.

Volcanoes and Earthquakes. A few miles from Naples is Vesuvius, a volcanic mountain. Through the crater in the center and top of the mountain, melted rock or lava sometimes pours out and flows down the slopes. At times there are explosions in the crater, and clouds of dust and larger fragments are hurled out. These darken the sky, and the stones and dust fall on the mountain slopes and build them up. Lavas and volcanic dust soon break up and make fertile soils, and people have gardens and vineyards and build large towns all around the foot of the mountain. Sometimes a town is partly or wholly destroyed and the people are compelled to leave, but soon return and build homes again. In the year 79 A.D. a great eruption completely buried two cities, Pompeii and Herculaneum, and in time they were entirely forgotten. After many centuries, Pompeii and a part of Herculaneum have been uncovered, the volcanic earth shoveled away, and the streets and many buildings, statues, and even pictures painted on the walls have been found well preserved.

Vesuvius is a small mountain, only about 4000 feet high; but Etna on the island of Sicily is about two miles high. At its foot are palms and orange trees; on its slopes are oaks and chestnuts; farther up are evergreen trees; and

around the top are perpetual snows. Sometimes eruptions melt the snows and send down streams of lava that endanger the towns and cities near the mountain.

In the Mediterranean, not far from Sicily, is Stromboli, an island volcano that is always sending out steam and other gases. In much of Italy are found volcanic rocks of former ages. A valuable product of the volcanoes and of the volcanic rocks of Italy, especially in Sicily, is sulphur. Italy produces about half of the world's quicksilver as well as some zinc, lead, and iron.

In southern Italy earthquakes are common. In the year 1908 the large cities of Messina and Reggio were almost completely destroyed, and thousands of people were killed by the falling walls.

Italian Farming. The plains of the Po furnish the largest area of good land in Italy. The soil is rich, level, and well watered. Wheat, corn, and rice are the principal Italian grains. The Italians grow large crops of wheat, and make much use of corn, which the poorer class eat in the form of thick corn-meal mush. Much rice is grown in the Po Valley, where the fields can be easily leveled and the crops flooded when necessary. Italy is the leading European country in the growing of rice, although some is produced also in other countries of the Mediterranean slope, notably in Spain.

Mulberry trees are grown in many parts of Italy, especially on the plains of the Po; and Italy produces more raw silk than France, though it does not manufacture so much. Grapes are almost as abundant as in France, olives are widely raised, and oranges and lemons are especially abundant in the southern end of the peninsula and in Sicily. Nuts are extensively grown. About a million acres are

covered with chestnut trees, and the people eat the nuts, boiled or roasted, in place of the potato. Nut meal is also used for making bread. Walnuts and hazelnuts are used at home and also exported. The Italians make large use of vegetables, which grow abundantly in their warm climate.

More than half of the Italian people are engaged in agriculture. Many of them do a great amount of hand work, turning the soil by hand and beating out wheat with a flail. For centuries they expended an enormous amount of time and labor in building walls and terracing mountain sides for grapes, oranges, and other fruits. White oxen, large and sleek, with long horns, are often seen at work on Italian farms, or drawing wagons in the streets of the cities.

— From *Essentials of Geography, Second Book*, by A. P. Brigham and C. T. McFarlane.¹

¹ Copyright 1916, 1920, 1925, by the authors, American Book Company, publishers.



52. USING BOOKS OF REFERENCE

When you studied the selection on Italy, you found silk mentioned as one of the most important products of the country. Now quite often a brief statement like that about silk is merely a small part of the whole story, and perhaps is the least interesting part to be known about it. Perhaps the story of the growing of silk will be more interesting. Do you know how silk is grown?

Remember that reading is not very valuable to us unless we ask ourselves and others questions about what we have read. Before you read this article you should know clearly why you read it. Here is the reason.

You should read this article to see what new facts are added to those on page 217.

When you have finished reading, some of the things you wanted to know about silk will have been answered. But new questions will have come to you.

Write out two of the new questions on paper.

How are you to get these answered? Ask your teacher.

HOW would you like to raise silkworms? Hundreds of thousands of Italians are engaged in this business, and many of the workers are boys and girls. Italy has the first place in Europe as a raw silk producer, and is second only to China and Japan in the world. She makes four-fifths of all the raw silk spun in Europe, and in some years her crop of silk cocoons amounts to tens of millions of pounds. The silk is produced chiefly in the northern and middle parts of the peninsula, where there are large plantations of mulberry trees which furnish leaves to feed the silkworms. The United States imports a great deal of raw

silk from Italy, but more from Japan and China. We are among the chief silk manufacturers of the world.

As we go on with our journey, we pass through many groves of mulberry trees. The trees are not large, and we see children of our own age and younger gathering the leaves and spreading them out on the trays where the silkworms are. The worms bite off bits of the leaves and eat them. In some places thousands are feeding at once, and we can hear the chopping of their little jaws as they cut up the green leaves. They are fed four or five times a day, and they eat most at night. They keep this up for eight or ten days, during which they grow very rapidly. After that they sleep for forty-eight hours, then eat for a few days, and go to sleep again, and they do this four times. The silkworms are full grown when they are about a month old. The caterpillars are about as big around as one's little finger and almost two inches long.

The caterpillar is now ready to spin its cocoon, and it does this by spitting a gummy liquid out of its mouth which sticks to the straws upon which it is laid for the purpose. It then doubles itself up, sways its head to and fro, drawing a fine silk thread from its mouth and spinning it about its body until after a time it is covered with silk, and at the end of three days it has made a silk home for itself. This is the cocoon. It looks like a white or cream-colored peanut covered with fuzz, and the length of thread in it is almost two miles. The worm now goes to sleep, and if left alone will turn into a butterfly and eat its way out.

The people, however, boil the cocoons to kill the worms inside, and then unwind the silk. They double the thread again and again, twisting it together to make it thicker, and it is from this thick thread that silk cloth is woven.

Silk culture is carried on all over Italy, and in one year sixty-five million pounds of cocoons are raised. More than two thousand factories are devoted to the spinning and weaving of silk, and two hundred to raising silkworm eggs.

You may remember how the silk weavers were brought from Italy to teach the weavers of France. That was during the Middle Ages. To-day the best silks of Europe are made in France, and millions of pounds of Italian cocoons are shipped there every year.

We see many people reeling silk as we go along under the slope of the Alps, and we find quantities of beautiful silk goods for sale in the stores of Turin, Genoa, and Milan. The girls of our party buy ribbons and bright colored sashes, and the boys pick out caps of knitted silk to take home.

— From *New Geographical Reader, Europe*, by Frank G. Carpenter.¹

¹ Copyright, 1924, by American Book Company.



53. THE SECRET OF THRIFT

This is a really wonderful secret for every boy and girl to learn. Only grown-up men and women know how important it is. Aladdin's lamp is not real, but every word of this story is true. Read it and see if this is not so.

CAN you tell me what to do with a quarter of a dollar to make it turn into a whole dollar *without my having to do any work whatever?* Of course I know that I could invest this quarter in newspapers and make a profit by selling the papers. After selling papers every day for a week, I might have a dollar by the end of that time; but this would require work on my part. What I want to know is this: How can I make a quarter grow into a dollar without my doing any work whatever? I hear one of you say that only a magician could do that. Well, it does sound like magic, doesn't it? Perhaps it seems to you to be a kind of magic as wonderful as Aladdin's lamp. You remember in the story of Aladdin that when Aladdin wanted gold, or precious jewels, or a beautiful palace, all he had to do was to rub a lamp and his wish was immediately granted.

I am going to tell you about a lamp of another kind, a new Aladdin's lamp, which when rubbed will make \$1 turn into \$5, or into \$6, or into as much as \$10, or even more. This new lamp I shall call the Magic Thrift Lamp. If you rub or touch the Magic Thrift Lamp with a dollar, the dollar will begin to grow and will keep on growing just as long as the Magic Thrift Lamp touches it. As soon as you take the

dollar away from the lamp, the dollar will stop growing. And like Aladdin's lamp, this Magic Thrift Lamp has the power to do these wonderful things for every boy or girl who possesses it. Just think of this great magic that can turn a dollar into \$5, or \$6, or even \$10! It is curious, too, that this Magic Thrift Lamp will do more for the young boys and girls than for the older ones. For the youngest boys and girls it will turn the dollar into \$10. For those a little older it will turn the dollar into \$7 or \$8. For the grown-ups or for your fathers and mothers it may only turn the dollar into \$2 or \$3 or \$4. So you see to get the most out of this Magic Thrift Lamp you must learn about it when you are young and you must always keep it in use.

How the Magic Thrift Lamp Helps Us to Save Money. It is evident that what I have told you can be a great help to you in saving money. If you save a dollar and put it where this Magic Thrift Lamp can touch it, you will find that after a certain time you will have \$2. If you leave the dollar in touch with the lamp long enough, it will turn into \$3. If you leave it still longer, it will turn into \$5, or \$6, or \$10, or even more. And all this can result from the saving of a single dollar. Further, every dollar that is saved can be made to grow in the same way.

But there is one peculiarity about this Magic Thrift Lamp; it demands that it shall not be disturbed when it is working. If you interrupt the lamp when it is working, by touching the money or taking it away, it will stop working immediately. And if it stops working, it will of course spoil the chances of your dollar turning into a large amount like \$6, or \$7, or \$10. So you see that we are forced to leave our money alone if the lamp is going to make it grow. But if we obey its rules, the Magic Thrift Lamp always repays

us by giving us in the end much more money than we started with.

Why We Should Save Money. As I have just said, this Magic Thrift Lamp can be a great help to you in saving money. And it is very important, as you know, for all of you to save money. Of course, none of you saves money just for the sake of the money itself, for if you did you would not be any different from the miser who hoards his money in a chest and does no good with it whatever. Your only reason for saving is to have sufficient money on hand for the time when you will need it very badly. When that day comes, it is likely that you will need the money much more than you need it to-day. This need may come when you grow up and want money to go to college, or to start in business; or it may arise if you should be taken very ill. You may want money when your parents get old and need your help. And when you yourselves grow old and cannot work any longer, you will need enough money to live on the rest of your lives. And you should remember, too, the pleasure that comes from being able to help others. How often have you regretted that you could give so little to some good cause!

Some people do not save money regularly, and when they become old they find themselves dependent upon relatives for support. Unfortunately, there are a great many such people. It is said that only 3 persons out of every 100 have saved enough money by the time they get to be 65 years old to support themselves independently for the rest of their lives. What a pity this is — to think that 97 old people out of every 100 would be in great want unless some son or daughter or other relative or the public supported them. The reason I want to tell you about this Magic

Thrift Lamp is to enable you to take pride in planning right now so that when you grow old you will have saved enough to take care of yourselves for the rest of your lives. I shall not speak of this matter further now. I merely want to remind you again that *the chief reason for saving is to have enough money on hand to use at any time when you get older and when some great need for money may suddenly arise.*

How the Magic Thrift Lamp Makes Money Grow. Now let me return to the Magic Thrift Lamp and tell you more about it. Of course, you want to know how the lamp works and how it makes \$1 turn into \$2 or \$3, when you put a dollar where the lamp will touch it. Well, one thing that makes the Magic Thrift Lamp work is *interest*. You all know what interest is. It's what you get if you put your money in the savings bank. Just as a boy can earn wages by working in a store, so money can earn wages by working for you if you lend it to a savings bank, and we call these wages *interest*. There is a Magic Thrift Lamp in every savings bank which makes every dollar grow that comes in touch with the lamp. Ordinarily, when you put money in the savings bank you get about 4 per cent interest a year. That means that if you leave \$100 in the bank it will earn \$4 a year. In fact, your \$100 usually earns money a little faster than \$4 each year, because most banks pay you the interest every 6 months. Let us see whether you can find out just how fast money will grow in a savings bank. I will ask you to take pencil and paper and figure out answers to the following questions:

1. If you deposit \$100 in the savings bank at 4 per cent interest on January 1, 1928, how much interest will your \$100 earn by July 1, 1928?
2. Would it be better to leave this \$2 interest in the bank or to take it out and spend it?

3. If you leave the interest in the bank how much money will you have there on July 1, 1928?
4. For the next six months (July 1, 1928, to January 1, 1929) how much interest will \$102 earn?
5. What is the best thing to do with this \$2.04 interest?
6. If you leave the interest in the bank how much will you have all together in the bank on January 1, 1929?
7. In the next 6 months (January 1, 1929, to July 1, 1929) how much interest will your \$104.04 earn?
8. What will you do with this \$2.08?
9. How much then will you have in the bank on July 1, 1929?

If you continue the calculation in this way for each 6 months, always leaving the interest in the bank, you can make a table like the one below which will show just how your money will grow. Let us call this —

THE MAGIC TABLE

On January 1, 1928, you start with \$100.00
 On July 1, 1928, it will grow to \$102.00
 On January 1, 1929, it will grow to \$104.04
 On July 1, 1929, it will grow to \$106.12
 On January 1, 1930, it will grow to \$108.24
 On July 1, 1930, it will grow to \$110.40
 On January 1, 1931, it will grow to \$112.61 or 0
 On July 1, 1931, it will grow to \$114.86 or 5
 On January 1, 1932, it will grow to \$117.16 or 4
 On July 1, 1932, it will grow to \$119.50 or 48
 On January 1, 1933, it will grow to \$121.89 or 86

You should all make these calculations just as I have done and see that your figures agree with those in the table. If your figures do agree you will have the satisfaction of knowing that you have your arithmetic well in hand. Your teacher will help you if you get into difficulty. Of course, you will find the calculating getting more tedious as you progress; but do not get discouraged, for the secrets of the Magic Thrift Lamp, like most secrets worth having,

are hard to get. By examining carefully this Magic Table we see that from January 1, 1928, to January 1, 1933, is just 5 years, and in this time \$100 has grown to be \$121.89, or 86, because you left the interest due each 6 months in the bank instead of taking it out. If you had taken the interest out of the bank each 6 months and had spent it, at the end of 5 years you would still have the \$100 you originally put in the bank. It would not have grown at all. You should notice, too, that by leaving each 6 months' interest in the bank, the interest in turn drew further interest, that is, you were getting interest upon interest. In our arithmetic classes we learn to call this *compound interest*. Compound interest is part of the secret of the Magic Thrift Lamp.

Now there is one thing that I must make very clear. The Magic Thrift Lamp will never work upon your money and make it grow if you keep your money stored up at home as a child might keep it in his toy bank. The Magic Thrift Lamp can't work in such a small place as a toy bank; it only works when you lend your money in some such way as to a savings bank or to the government.

How to Form the Habit of Saving. But there is a still more important thing for you to do if you wish to learn the art of saving. When you have resisted the temptation to purchase a luxury, then immediately put the sum thus saved in the bank and leave it there so that compound interest will begin to work upon it. *Do not put the sum back in your pocket only to wait some other temptation to spend it*, a temptation a little stronger perhaps than the first one. One secret of saving is to put the amount saved in the bank as soon as possible after resisting the first temptation to spend it. In this way you will get into the habit of saving, and this is an excellent habit to acquire. The way to form

any habit is to keep doing the thing over and over again. A boy learns to swim by keeping at it until he doesn't have to think about it, until it becomes a habit. And a girl learns to knit in the same way. Get the habit of saving by saving regularly every week or month until the habit is so strong that you will save regularly, without having to force yourself to do it.

Another good thing when spending money is to remember that it is on the useless little things that much of our money is wasted, such as the 5 cents spent for candy or the 10 cents for a soda. It is important for all of you carefully to keep track of the amount you thus really waste each week or month and you will probably find that more dollars are wasted thus than by purchasing those luxuries that are more expensive. By all means, stop these small wastes and turn them into savings.

— Adapted from C. B. Upton in *The Teachers College Record*.¹

QUESTIONS

1. Can a dollar be made to grow?
2. Will it grow if it is not touching the lamp?
3. Will it grow more if you are young than if you are old?
4. Does the selection say that we should save just to have more money?
5. Is there a magic lamp in a toy bank?
6. Does the magic lamp make money grow without your working at all?
7. Does saving help the magic lamp?
8. Is interest usually added by the bank every year?
9. Is it wise to save every week?
10. Does money grow in your pocket?

¹ Reprinted by permission.

54. A WONDERFUL DISCOVERY

King Tutankhamen lived and ruled a great kingdom in Egypt about 3000 years ago. The oldest peoples of Europe were probably savages in his time, and we can only guess at the manner of their life. But the discovery of this king's tomb in exactly the condition in which it was left gives us a very clear idea of ancient Egyptian life. In the tomb were the king's throne, his bed, and his walking stick. These articles were beautiful in form and color.

All this suggests interesting questions:

1. How was the discovery made?
2. How could anything made by man last so long?
3. How did these people become so highly civilized 3000 years ago?
4. What was found and what do the articles tell us about the king and his people?

Read this article and try to answer these questions.

THE valley of the Nile River long before King Tutankhamen's (toot-änk-ä'men) reign held a great nation. The soil, made rich by the yearly flooding of the river, produced large crops. The climate was favorable. The people built not only houses but great temples and monuments like the pyramids and the sphinx. They were fine craftsmen in wood, clay, and metal.

They had a written language to record their history. Especially they had a highly developed religion. They believed that there was a life after death. The elaborate preparation for this life after death is the reason for the tombs, which have been discovered in our own time.

If a king was to live after his death, they thought he would need his earthly body, and it was preserved with great care.

A tomb hollowed out of the rock was furnished with all the things which had been used by him. Then it was carefully sealed, so that it would not be disturbed. King Tutankhamen's tomb, along with many other tombs, was built in a desert valley. The religion forbade its disturbance. The dry air preserved everything. Two centuries later laborers excavating for another tomb covered Tutankhamen's sepulchre with rubbish. It was then forgotten and the wind-blown sands in time covered it. Centuries passed. The great nation and its civilization almost disappeared. Thieves broke into other tombs, and the mummies and jewels of other dead kings were stolen or carried away to other lands, but King Tutankhamen's tomb was forgotten and unknown.

Men had come, however, to see the value of these records of ancient kings, and Lord Carnavon, an Englishman, sent a party into the Valley of the Kings to search for these great historical treasures. Mr. Howard Carter was the leader of the party. For sixteen years they found little to reward them. Then came the great discovery! The entrance to King Tutankhamen's tomb was found, and after removing the great stone which sealed it, they looked at a royal scene which no one had gazed upon for 3000 years and more.

First they saw three magnificent state couches, all gilt, carved exquisitely with heads of animals. On these rested gilt beds which were beautifully carved and inlaid with ivory and semi-precious stones, and also innumerable boxes of exquisite workmanship. One of these boxes was inlaid with ebony and ivory and covered with gilt inscriptions; another contained emblems of the underworld; on a third, which contained handsomely embroidered royal robes, precious stones, and golden sandals, were beautifully painted hunting scenes.

There was a stool of ebony inlaid with ivory, with the most delicately carved duck's feet; also a child's stool of fine workmanship. Beneath one of the couches was the beautiful state throne of King Tutankhamen. There was also a heavily gilded chair, with portraits of the king and queen, the whole encrusted with turquoise, cornelian, lapis, and other semi-precious stones. Two life-sized statues of the king holding a golden stick and mace faced each other, the handsome features, the feet, and the hands delicately carved, with eyes of glass and headdress richly studded with gems. There were also four chariots, the sides of which were encrusted with semi-precious stones and rich gold decoration. A charioteer's apron of leopard's skin hung over the seat.

Other noteworthy objects were royal scepters, one of ebony with the head of an Asiatic in gold, as a handle, another of the handsomest filigree work; also a stool for a throne with Asiatics carved on it, denoting that the king had placed his foot on the neck of the Asiatic prisoners taken in war. There were some quaint bronze-gilt musical instruments and a robing dummy for royal wigs and robes.

There were also some exquisite alabaster vases of very intricate and unknown design, and enormous quantities of provisions for the dead, all packed in boxes according to the custom of the time. There were some wreaths, still looking green, and one of the boxes contained rolls of papyri, which are expected to render a mass of information.

It will take a long time for men of learning to understand the full meaning of all this evidence of a great civilization that is more than three thousand years old. They will read the papyri, or writings, and study the articles and help us to know these ancient people. We can wonder at the crafts-

manship which made these articles for the use of the king; at the trade and travel which gathered the precious materials; and at the religion, which taught these early people to believe so firmly in a life after death. We can admire, too, the patience and devotion which enabled people of our own time to find after years of search this story of a great people.



55. THE WEATHER PROPHET

You have probably seen many times in the daily papers an announcement like this:

THE WEATHER

Fair to-night. Sunday cloudy, probably rain. Diminishing northwest winds, becoming easterly.

For full weather report see next to last page.

Do you know who has this printed, and how and why this weather forecast is made?

On page 236 you will see a copy of the weather map that is sent out daily by the government. Your teacher can secure one daily for your own room free of charge by writing to the nearest Weather Bureau Office.

First study the weather map to see what questions it raises, then read the following article carefully, referring to the map as often as is necessary. After careful study you ought to be able to tell how and why our government predicts the weather.

WILL picnic day be fair, or will pouring rain spoil the fun? The Weather Bureau of the United States government can tell you twenty-six to forty-eight hours in advance, and, except for local flurries, be right nine out of ten forecasts.

Uncle Sam is right in these forecasts because he does not guess. Early every morning, the district forecasters' offices in Washington, Chicago, New Orleans, Denver, and

San Francisco are connected by telegraph with trained observers stationed over the United States, on ships at sea, and distributed in foreign posts; and for two hours the network of wires hums with the reports of weather conditions throughout the Northern Hemisphere. From the great mass of information received, the forecasters make up their weather reports, and before the two hours are up these reports are received at all the principal distribution stations in all parts of the country.

There are some 6000 observation stations in the United States, some of which make complete daily reports, while others record only certain weather conditions of importance in their locality. The more important stations are equipped with very delicate instruments. The record of the temperature is kept by accurate thermometers, and the atmospheric pressure is measured by barometers. Instruments called hygrometers measure the moisture content of the air. Gauges of snow and rainfall are usually open cylinders into which the moisture falls and is measured. The familiar weather vane gives the direction of the wind, and other instruments called anemometers measure the pressure and velocity of the wind. Most of these instruments are self-registering; that is, the changes in the instrument are recorded on a chart moved along by clock-work so as to give a continuous record of a certain number of hours. There is, for example, a sun recorder, which is equipped with a pen that marks on the chart only when the sun shines on it. Many other instruments are used, so delicately adjusted that the records seem almost magical.

At the main stations, weather cards are printed for post-offices, school buildings, and other public places. Others are mailed to addresses where weather information is de-

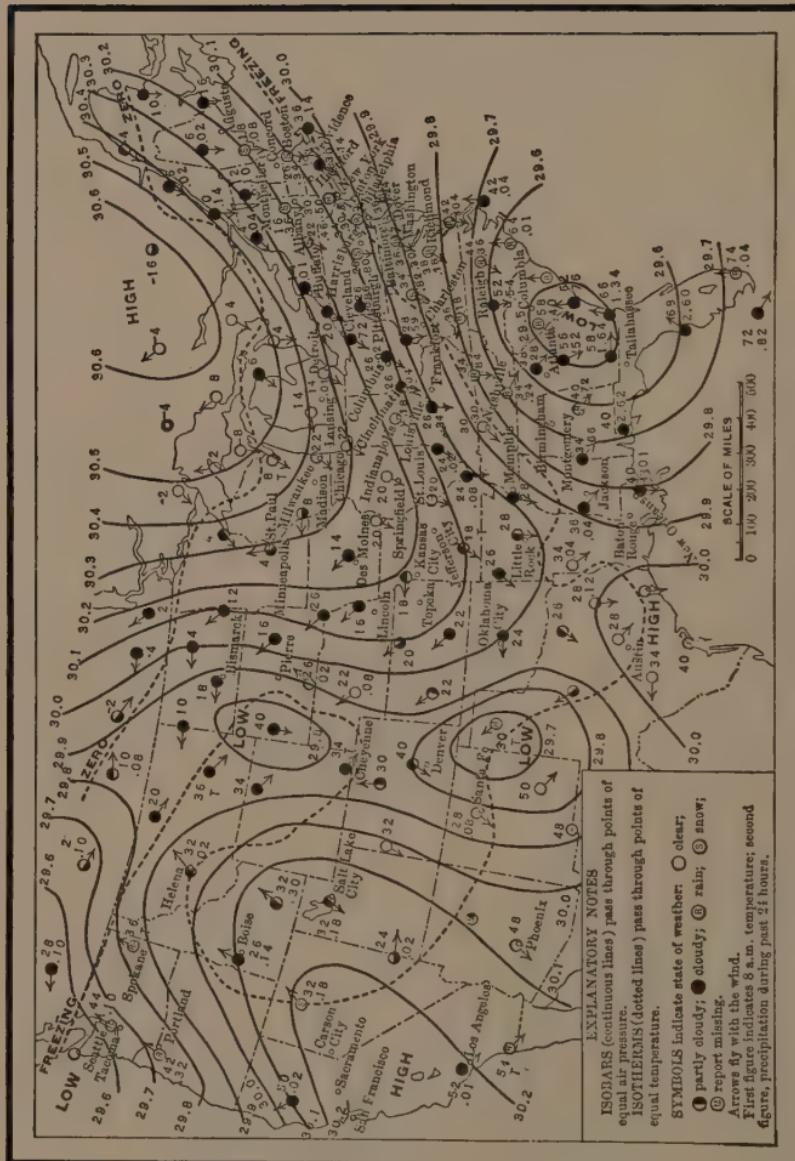
sired. All newspapers print the report, and flag signals announce its principal features, especially to ships in harbor. Wireless stations flash it out over the sea. Before afternoon, every one who is not isolated in some wilderness has had the prediction placed where he can get it if he wishes.

Of course such an elaborate system is not maintained simply to warn picnic parties of thundershowers. Weather predictions save millions of dollars' worth of property every year. Railroads regulate their shipments of perishable and refrigerated freight according to the reports; ships at sea are warned in advance of storms, and many of them avoid hurricanes by being warned in advance to stay in port until the storm has passed. The reports enable grain exchanges to foretell the effect of weather upon crops, and farmers and fruitgrowers often avoid loss through untimely frosts by heeding the Weather Bureau's warnings.

The services of the Weather Bureau were also of great help during the World War. Trained weather men were enlisted to help the armies, not only by supplying information to the flying squadrons, but also to increase the accuracy of fire of the artillery, and to aid in selecting the time for gas attacks and infantry advances.

To guide the forecasters in making their predictions, the weather conditions at all stations are charted upon a map, both morning and evening. A small circle marks each reporting station, and the circle is shaded or tinted to show the character of its weather, as "clear," "snow," or "rain." An arrow beneath the circle shows the direction of the wind.

Barometric readings, showing the atmospheric pressure at the different stations, are also recorded, and the regions of lowest pressure are marked "low," while those of highest pressure are marked "high." Lines connecting the points



of equal pressure are then drawn about these "lows" or "highs" as centers. Such lines are called isobars. Points of equal temperature are connected by broken lines which are called isotherms.

With these data charted, the coming weather is almost as obvious to the trained forecaster as though it were printed upon the map. Experience has shown that these "highs" and "lows" pass across the country in paths that may be predicted, and each center carries its own weather with it. Thus if to-day's map shows a warm rainy "low" over Denver, while wind velocity and direction and other conditions indicate that by to-morrow this center will be over Omaha, the probabilities are that there will be a warm rain over Omaha on the following day.

The most difficult prediction problem confronting the Bureau is that of rain. Its methods enable it to forecast heavy storms, cold waves, and hot weather with almost unfailing accuracy; but its rain predictions are still somewhat uncertain.

In signaling forecasts the Weather Bureau uses a white flag for fair weather; a blue flag for rain or snow; a white and blue flag for local rain or snow; and a white flag with a black square in the center for a cold wave. A black triangular temperature flag is placed above one of the others to indicate warmer, and below to indicate colder weather. For storm signals red flags are employed, and the direction from which the storm may be expected is indicated by triangular pennants.

Permanent weather records are kept in the United States and other countries, and these become very valuable when made continuously for long periods of time. The records now available disprove the rather common belief that the

weather of the United States has undergone a change and that there is no longer the severe winter weather of the "good old days." Perhaps the snow stayed on the roads for a longer sleighing season because there was less travel to wear it down, and the trains were stalled for weeks at a time because there were no snow plows to clear the track.

The United States was the first country to make weather forecasting an important part of the work of its government. In 1879 a weather bureau was established as a branch of the signal service in the War Department, and some twenty years later it was transferred to the Department of Agriculture. The United States Weather Bureau to-day is furnishing the most complete service of its kind in the world.

— From *Compton's Pictured Encyclopedia*.¹

¹ Reprinted by permission of F. E. Compton and Company.

56. PIONEER FARMERS

This selection is full of interesting information about something with which you may be familiar. Read it rapidly, but be sure to get the important facts.

Wait until your teacher gives you further directions before you begin to read.

ONE of the early settlers of Indiana has left us an account of his experience in farming. He first built a cabin and then cleared away a few acres of the woods around it. Here he planted corn, potatoes, and the other things they needed for food. When he went out to work in his fields, he always took with him a loaded rifle. This he laid on the ground near him and stuck a stick into the earth beside it so that in case Indians came he could run to it at once. He wore a belt, and in this were two loaded pistols, a tomahawk, and a knife. The danger from the Indians was so great that he never dared to go without these weapons.

The danger at night was still greater, so careful preparations had to be made. He always kept two dogs. One was left outside the cabin when the family retired, while the other remained inside. If the dog outside barked, the one inside barked also and awoke the man and his family. In the walls of the cabin were portholes, through which they could shoot without exposing themselves. One of these portholes looked out to the stable where the horses were kept, as these animals were too valuable to risk their being stolen or killed. When the portholes were not in use, they were closed with thick blocks.

This is a picture not only of that man and his family but of many others of the early times in the West. In each cabin lived a family, perhaps a mile or more from any other. In case of trouble they could look for no help from any neighbor. Each family had to depend upon itself, and no one could ever feel secure. Each night as they retired, they well knew that before morning the cabin might be burned and every one of them be a victim of the cruel Indians. That was the way the boys and girls of those times lived, and they were so used to it that they expected nothing else. It was a sad, hard life of continual fear.

Then, too, the weapons they had for defending themselves were quite different from the weapons of our day. Now rifles are quickly loaded and fired, but in those days it was a long, hard job to get one ready for action. All guns and pistols were single-barreled, clumsy affairs with flint locks. To load one, it was first necessary to measure the charge of powder by pouring it from a horn into a charger, and then to pour it into the gun. The bullet was placed upon a piece of cloth and pressed into the gun with the handle of a knife, which was then used to cut off the edges of the cloth. There was a ramrod in "thimbles" under the gun barrel. This had to be pulled out, and then with it the bullet was rammed down to the bottom of the barrel upon the powder. There were still other things to be done before the gun was ready, and sometimes when loaded too hastily the gun would miss fire.

The old-fashioned gun was very powerful when properly loaded, and the men of those days were wonderful marks-men. The Indians had great fear of them and well they might. At any distance within a hundred yards an Indian was doomed when aimed at by a man with one of those guns.

57. READING THE NEWSPAPER

Newspaper reading is one of the most common kinds of silent reading. One usually reads in a newspaper only what seems important and interesting. The headlines to the various articles are, therefore, very helpful in determining what one wishes to read.

The following article describes the home-coming of Theodore Roosevelt. Read the headlines, and then read the entire article if you think all of it will interest you; if not all, read such parts as appeal to you most.

MILLION WELCOME ROOSEVELT HOME

Huge Crowds Give One Long
Ovation From Quarantine
Through City Streets
To Oyster Bay

NOT ONE OLD
FRIEND FORGOTTEN

Warm Greetings to Cabinet Offi-
cers, Politicians, Policemen,
and Just Plain Folk

WANTS TO BE QUIET A WHILE

Ready to put His Shoulder to the
Wheel and Do His Part in
Solving Our Problems

Theodore Roosevelt, twice President of the United States, came home from his African hunting trip and its succeeding tour of Europe yesterday, and his home-coming will be memorable.

Fort Wadsworth, down by the Quarantine station, hailed his return with a national salute of twenty-one guns, such as is given to the President of the United States when in office. A battleship, torpedo boat destroyers, and a flotilla of yachts and harbor craft escorted him up the bay, and the Mayor welcomed him at the Battery.

Thence he passed through five miles of cheering crowds to the center of the city, amid thousands of his fellow-citizens, whose welcome showed him that they were as happy over his home-coming as he was himself. Last night, after this great tribute — one such as never has been paid in this or perhaps any other country to a private citizen — he was back in his own home at Oyster Bay, passing there under triumphal arches erected by his neighbors, and was pleading for a few days' quiet.

Battery Packed By Admirers Since Early Morning

The setting for the formal welcoming exercises at the Battery was well-nigh perfect. People had been flocking to Battery Park almost since daybreak, crowding it by 10 o'clock. All standing space from which the speakers' stand could be seen was packed.

The speakers' stand had been erected seventy-five yards to the east of the entrance to the Dock Department pier. Immediately surrounding the raised platform from which addresses were to be delivered was a roped-off space accessible to 3500 ticket holders. Through this were two carefully guarded aisles for breathing spaces and to admit the easy movement of Col. Roosevelt from the pier to the speakers' stand and of Mayor Gaynor from Broadway to the same place.

These aisles also defined the Court of Honor. They were margined by high poles with gonfalons of red and white, with American flags and low festoons of oak leaves. The southern end of the Court of Honor was bounded by the three official stands, one for the distinguished guests, including the Governors and the representatives of Governors of States, Cabinet Ministers, and National and State officials of high and low degree, another for the half a hundred newspaper men assembled from all the larger Eastern cities, and between the two the canopied platform.

Ten minutes before 11 o'clock Mrs. Roosevelt and her party, who had come to the Battery on the revenue cutter Manhattan, entered the private box built for them slightly off the central aisle.

Mayor Gaynor arrived, escorted by Civil Service Commissioner Welling and Mirabeau L. Towns, and ascending to the speakers' stand alone, removed his silk hat and bowed toward Mrs. Roosevelt. A moment later word ran along that the *Androscoggin* (the reception steamer) had docked and Col. Roosevelt was coming ashore. The Seventy-first Regiment Band on the pier struck up *Home Sweet Home*, confirming the report. A cheer went up and soon came the cry, "There he is!"

Sure enough, there he was, silk hat in hand, bowing right and left and calling to his friends by name.

Mayor Gaynor descended the steps, meeting the Colonel a few feet from the bottom. They smiled, Mayor Gaynor quietly, Col. Roosevelt energetically, and the Colonel gave the Mayor's arm a vigorous pumping. Then, amid the roar of welcome, they ascended to the platform together.

And then the Roosevelt Rough Riders, their new uniforms bright against a background of dark police blue, swung around into the Battery Place, and Mrs. Longworth and Ethel Roosevelt called:

"Look, father! The Rough Riders!"

He looked instantly and waved his silk hat toward his old comrades almost frantically.

Mayor's Welcoming Speech

Mayor Gaynor, gently turning him about, brought him back to formalities and began the welcoming speech. He said:

"Ladies and Gentlemen: We are all here to welcome Mr. Roosevelt home to New York. We have watched his progress through Europe with delight. Everywhere he has gone he has been honored as a man and as an exponent of the principles of the government of this country. He was received everywhere in Europe and honored as no man from this country ever was

honored. We glory in all that, and it only remains for me to say now, Mr. Roosevelt, that we welcome you home most heartily and we are glad to see you again."

Replying, Col. Roosevelt said :

"Back, Ready to do My Part"

"I thank you, Mayor Gaynor. Through you I thank your committee, and through them I wish to thank the American people for their greeting. I need hardly say I am most deeply moved by the reception given me. No man could receive such a greeting without being made to feel both very proud and very humble.

"I have been away a year and a quarter from America, and I have seen strange and interesting things alike in the heart of the frowning wilderness and in the capitals of the mightiest and most highly polished of civilized nations. I have thoroughly enjoyed myself, and now I am more glad than I can say to get home, to be back in my own country, back among people I love. And I am ready and eager to do my part so far as I am able in helping solve problems which must be solved if we of this the greatest democratic Republic upon which the sun has ever shone are to see its destinies rise to the high level of our hopes and its opportunities.

"This is the duty of every citizen, but it is peculiarly my duty, for any man who has ever been honored by being made President of the United States is thereby forever after rendered the debtor of the American people, and is bound throughout his life to remember this as his prime obligation, and in private life as much as in public life so to carry himself that the American people may never have cause to feel regret that once they placed him at their head."

— Adapted from *The New York Times*.¹

¹ Reprinted by permission.

58. GUARDIANS OF OUR HEALTH

You may not know that there are hundreds of government officers who are working constantly to keep you in good health. It is the duty of everybody, of course, to coöperate with them, because they are working for your welfare. This article will tell you how they help you.

Read the article carefully; then write on a sheet of paper these two main headings:

- I. Work of the United States Public Health Officers.
- II. Work of the City, Town, and State Boards of Health.

Under the first heading write three subtopics, and under the second heading at least eight subtopics. Reread the article as often as necessary.

THE work of protecting the nation's health begins at its borders. All the entrance ways into the country are guarded. Every ship that enters an American harbor is met by a revenue cutter flying the yellow flag of the United States Public Health Service, and if there is one case of yellow fever, smallpox, bubonic plague, or other contagious disease on board, the ship is forced to remain in quarantine for a specified time, during which passengers and crew are not allowed to land and cargo may not be discharged. Sometimes ships from foreign cities where these diseases are known to exist are not allowed to enter American ports at all. Immigrants are not allowed to come into the country if they have tuberculosis, or contagious diseases of the eye or skin.

The government health officers have thrown out their pickets far and wide. In Shanghai, Naples, and some thirty

other places, trained health scouts are stationed to watch for contagious diseases and report to the home office. The American consuls stationed all over the world also report on health conditions to the Public Health Bureau in Washington. If plague breaks out in China to-day, the Washington authorities know it at once, and notify the health police at all ports of entry.

When such diseases as yellow fever, typhoid fever, malaria, Rocky Mountain spotted fever, hookworm, and pellagra occur within the nation's borders, the causes are investigated and the best method of fighting them ascertained. One of the striking examples of government disease extermination was the triumph over the yellow fever and the malarial mosquito in Panama. The story of this wonderful achievement which turned one of the plague spots of the world into a healthy locality is told in the life of General Gorgas.

Local work is carried on by state and city health departments, which coöperate with the Washington authorities. Doctors are compelled to report all contagious diseases to the local health department, and those families in which there is smallpox, scarlet fever, or diphtheria are quarantined; that is, a card is put on the house warning others to remain outside, while members of the family are not allowed to leave the premises. Children with measles, mumps, whooping cough, and chicken pox are kept from school so the other children will not be exposed, and public schools may be closed entirely in case of epidemics. After the patient is reported well, city health officers come and disinfect the house. Clothes that can be washed must be boiled. Rugs, mattresses, and bedding, in some cities, are removed to the city's plant to be disinfected and returned.

Factories are inspected to see that workers are not overcrowded, that guards are put on machines to prevent accidents, that good light and air are supplied, and that children under a certain age are not at work for wages.

In cities, where so many people are living in such a small area, a great deal more is usually done to protect the health of the people than in the country, where there is plenty of pure air and sunshine. The health department of a large city frequently employs several hundred people. The fight against dirt is constant, for dirt is the great disease breeder. Thanks to the vigilance of our health departments, the open garbage pail has disappeared, with the filthy piles of refuse and cesspools that once made many alleys and back yards breeders of disease. Many cities still cling to the abominable old-fashioned method of street-cleaning by sweeping the refuse and dust into piles and loading it into open carts, while the germs of a hundred diseases are scattered broadcast by every puff of wind. But modern ingenuity will speedily end this nuisance, too, for sanitary inclosed street-sweeping machines are now coming into use.

One of the first duties of a city health department is to insure a constant supply of pure water. It is necessary also that milk, which forms the chief food of children and sick people, be safe, and strict laws regulate its production and distribution. Pure air is another thing we need if we are to be healthy, and the heavy pall of smoke that hovers over our cities is a problem on which all health experts are working.

Pure food laws are passed to prevent the sale of unfit food. Restaurants and bakeries are inspected periodically to see that the food is prepared in a sanitary manner. If there is a dirty factory or stable near you that breeds flies,

the health officers will see that the place is cleaned, for flies carry disease. Bakeries, markets, cold storage houses, and fruit markets are watched to see that no spoiled food is sold. Plumbing and gas pipes are subject to city inspection, and if the owner does not make the necessary repairs, his place may be closed to tenants. The health department is usually responsible also for keeping vital statistics; that is, records of births and deaths, and their causes, the number of cases of contagious diseases and accidents, and their causes, and other such things.

One of the best weapons of the health officer is publicity. By giving publicity to unhealthful conditions, the city pride is aroused and inefficient officers and shameless milk dealers and food-law violators are shamed into enforcing and obeying the law. Much good, too, has been done by campaigns of education as to care of children, or against common drinking cups and roller towels, and other spreaders of disease.

Many city school boards employ school doctors and visiting nurses who examine the children's eyes, ears, noses, throats, teeth, and skin, watch for contagious diseases, and save many children who are in the early stages of tuberculosis. If the parents are unable to pay for glasses, for dental work, or for removing bad tonsils or adenoids, or for any other trouble, the children can be treated in free dispensaries and hospitals. Every city has public hospitals supported by taxes to take care of its sick, and many are beginning to build camp hospitals and sanitariums for people with tuberculosis. To all these public agencies the Red Cross and many private organizations have added their efforts and resources.

In "the good old times" that some look back to with regret, there was virtually no care of the public health and

frequent epidemics devastated whole cities and districts. One baby in three died. Middle age was toothless, on the average life was twenty years shorter than now, and unspeakable filth was tolerated. It would be impossible to-day to find such a combination of luxury and filthy, disease-breeding conditions as that in the midst of which Queen Bess and her courtiers held sway. Smallpox, until the discovery of vaccination in 1796 by Jenner, was as common as measles to-day. A seventeenth century writer remarks that in a gathering, the face of one out of every four would be horribly disfigured by the disease. At one time the plague, a terrible disease which has its real home in China, was common in Europe, as also was leprosy, although these two hideous diseases are rare to-day in civilized countries. Yellow fever and malaria have been wiped out in places where they have raged for ages, by the extermination of the mosquitoes that carried them. Not very long ago a terrible disease broke out in Malta which was known as Malta fever, but it was stopped when it was discovered that it is carried in infected goat's milk. The dread typhoid fever, the most dangerous of all filth diseases, was looked upon, only a few years back, as a disease that could not be prevented or controlled; but it can be almost completely wiped out by intelligent care. Indeed, it is a common saying that the intelligence of a community in sanitary affairs is indicated by the number of typhoid deaths. Cholera once swept frequently from country to country, and it was the great epidemic of 1848-49 that awakened the United States to the whole question of sanitation and fighting diseases cooperatively. Only a generation ago typhus was very common; now it hardly causes ten deaths in the whole of America in one year. But the disease is still common in

backward countries of Europe and Asia; and in the World War it broke out in the trenches of the invaded countries.

Tuberculosis is the most dreadful scourge that still afflicts the civilized world. The microbe that causes it was discovered near the end of the last century, and it has been learned that we catch it from one another and from other conveyors, such as infected milk. The number of people who have tuberculosis is not so great in civilized countries as it used to be, and the number will be constantly less if we act on the knowledge we have. The health department watches that we receive no milk from tubercular cows; we can be careful never to spit on the streets or in public places; most people keep their windows open at night; and it is not too much to hope that when the children who read this are grown, a case of tuberculosis will be as rare as a case of smallpox is to-day.

The next generation will realize, much more than this one, the importance of health and the right every one has to it, and will understand the reason why health measures are advocated and why people should observe them. Everybody should be a soldier in the army that fights for good health and should see that statesmen and governments put it first in their programs for human betterment.

— Adapted from *Compton's Pictured Encyclopedia*.¹

¹ Adapted and reprinted by permission of F. E. Compton and Company.

59. THE NECKLACE

This is a famous short story about the life of a poor clerk in Paris. It has an ending that contains a surprise. You will naturally wish to read it rapidly, but do not read so fast that you fail to appreciate the character of the woman and her husband, and the way the author holds the reader in suspense to the very end.

SHE was one of those pretty, charming young ladies, born, as if by mistake, into a family of clerks and laborers. She had no dowry, no expectations, no means of becoming known, loved, or married by a man either rich or great; and so she allowed herself to marry a petty clerk in the office of the board of education.

She was plainly dressed, not being able to adorn herself, and she was unhappy. She suffered all the time, feeling herself born for fine things. She suffered from the poverty of her apartment, — the shabby walls, the worn chairs, and the faded carpets. All these things, which another woman of her station would not have noticed, tortured and angered her. The sight of the man who made this humble home awoke in her sad regrets and unhappy dreams.

When she seated herself for dinner, before the round table where the tablecloth had been used three days, opposite her husband who uncovered the tureen with a delighted air, saying, "Oh! the good potpie! I know nothing better than that," she would think of elegant dinners, of shining silver, of exquisite food served on beautiful dishes, and of

chatting with a gay company while eating the rose-colored flesh of a trout.

She had neither frocks nor jewels, nothing. And she loved only those things. She felt that she was made for them. She had such a desire to please, to be sought after, to be clever, to be courted.

She had a rich friend, a schoolmate at the convent, whom she did not like to visit, because she suffered so much when she returned. Whenever she returned from a visit she wept for whole days from regret, despair, and disappointment.

One evening her husband joyfully returned, bearing in his hand a large envelope.

“Here,” said he, “here is something for you.”

She quickly tore open the wrapper and drew out a printed card on which were written these words: The Minister of Public Instruction and Madame George Ramponeau ask the honor of Monsieur and Madame Loisel’s presence at the Minister’s Palace, Monday evening, January 18.

Instead of being delighted, as her husband had hoped, she threw the invitation spitefully upon the table, muttering:

“What do you suppose I want with that?”

“But, my dear, I thought it would make you happy. You never go out, and this is an occasion, and a fine one! I had a great deal of trouble to get the invitation. Everybody wishes one, and not many are given to employees. You will see the whole official world there.”

She looked at him angrily and asked:

“What do you suppose I have to wear to such an affair as that?”

He had not thought of that. He stammered:

“Why, the dress you wear when we go to the theater. It seems very pretty to me —”

He was silent and dismayed at the sight of his wife weeping. Two great tears rolled slowly from the corners of her eyes toward the corners of her mouth. He stammered :

“What is the matter? What is the matter?”

By a violent effort, she controlled her anger and answered in a calm voice, wiping her moist cheeks :

“Nothing. Only I have no dress and of course I cannot go to this affair. Give your card to some one whose wife is better fitted out than I.”

He was grieved, but answered :

“Let us see, Matilda. How much would a suitable dress cost, something that would do for other affairs; something very simple?”

She remained silent for some seconds, making estimates and thinking of a sum that she could ask for without being sure of an immediate refusal.

Finally she said, in a hesitating voice :

“I cannot tell exactly, but it seems to me that four hundred francs ought to cover it.”

He turned a little pale, for he had saved just this sum to buy a gun so that he might join some hunting parties the next summer. Nevertheless, he answered :

“Very well. I will give you four hundred francs. But try to have a pretty dress.”

The day of the ball drew near and Madame Loisel seemed sad, disturbed, anxious. Nevertheless, her dress was nearly ready. Her husband said to her one evening :

“What is the matter with you? You have acted strangely for two or three days.”

And she responded: “I am vexed not to have a jewel, not one stone, nothing to adorn myself. I shall have such a poverty-stricken look. I should prefer not to go.”

"But," he said, "you can wear some real flowers. At this season they are just the thing. For ten francs you can have two or three beautiful roses."

She was not convinced. "No," she replied, "there is nothing more humiliating than to have a shabby air in the midst of rich women."

Then her husband cried out: "How stupid we are! Go and find your friend Madame Forestier and ask her to lend you her jewels. You are well enough acquainted with her to do this."

She uttered a cry of joy: "It is true!" she said. "I had not thought of that."

The next day she took herself to her friend's house and related her story of distress. Madame Forestier went to a closet with glass doors, took out a large jewel-case, brought it, opened it, and said: "Choose, my dear."

She saw at first some bracelets, then a collar of pearls, then a Venetian cross of gold and jewels. She tried them before the glass, hesitated, but could neither decide to take them nor make up her mind to leave them. Then she asked:

"Have you nothing more?"

"Why, yes. Look for yourself. I do not know what will please you."

Suddenly she discovered, in a black satin box, a superb necklace of diamonds, and her heart beat fast with a great desire. Her hands trembled as she took them up. She placed them about her throat against her dress, and remained in ecstasy before them. Then she asked, in a hesitating voice:

"Could you lend me this? Only this?"

"Why, yes, certainly."

She fell upon the neck of her friend, embraced her, and went away with her treasure.

The evening of the ball arrived. Madame Loisel was a great success. She was the prettiest of all, elegant, smiling, and full of joy. All the men noticed her, asked her name, and wanted to be presented. All the members of the Cabinet wished to waltz with her. The Minister of Education paid her some attention.

She danced with joy, almost beside herself with pleasure. She passed the evening in a cloud of happiness as a result of all this admiration, and the realization of her dreams.

She started for home toward four o'clock in the morning. Her husband had been half asleep waiting for her since midnight.

He threw around her shoulders the wraps she had brought, modest garments of everyday wear which seemed quite out of place with the ball costume. She felt this and wished to hurry away in order not to be noticed by the other women who were wrapping themselves in rich furs.

Her husband called to her: "Wait! You will catch cold out there. I am going to call a cab."

But she would not listen, and hurried down the steps. When they were in the street, they found no carriage; and they began to seek for one, hailing the coachmen whom they saw at a distance.

They walked along toward the Seine, hopeless and shivering. Finally they found on the wharf one of those old cabs that one sees in Paris after nightfall, as if they were ashamed of themselves by day.

It took them as far as their door in Martyr Street, and they went wearily up to their apartment. It was all over for her, but on his part, he remembered that he would have

to be at the office by ten o'clock. She removed the wraps from her shoulders before the glass for a final view of herself in her glory. But the necklace was not around her neck.

She turned toward her husband excitedly :

“I have — I have — I no longer have Madame Foresier’s necklace.”

He arose in dismay : “What ! How is that ? It is not possible.”

They looked in the folds of the dress, in the folds of the cloak, in the pockets, everywhere. They could not find it.

“You are sure you still had it when we left the house ?” he asked.

“Yes, I felt it in the vestibule as we came out.”

“But if you had lost it in the street, we should have heard it fall. It must be in the cab.”

“Yes. It is probable. Did you take the number ?”

“No. And you, did you notice what it was ?”

“No.”

They looked at each other, utterly cast down. Finally, Loisel said :

“I am going over the track where we went on foot, to see if I can find it.”

And he went. She remained in her evening gown, not having the strength to go to bed, stretched upon a chair, without ambition, unable to think.

Toward seven o'clock her husband returned. He had found nothing. He went to the police and to the cab office, and put an advertisement in the newspapers, offering a reward ; he did everything that afforded them the least hope.

She waited all day half crazed with fear before this

frightful disaster. Loisel returned at evening with his face worn and pale ; he had found nothing.

“It will be necessary,” said he, “to write to your friend that you have broken the clasp of the necklace and that you will have it repaired. That will give us time to turn around.”

She wrote as he directed.

At the end of a week, they had lost all hope ; and Loisel, looking five years older, declared :

“We must take measures to replace these jewels.”

The next day they took the box which had inclosed it to the jeweler whose name was on the inside. He consulted his books :

“It is not I, Madame,” said he, “who sold this necklace ; I furnished only the casket.”

Then they went from jeweler to jeweler seeking a necklace like the lost one, both of them ill with anxiety and fear.

At last they found a string of diamonds which seemed to them exactly like the one they had lost. It was valued at forty thousand francs. They could get it for thirty-six thousand.

They begged the jeweler not to sell it for three days, and they made an arrangement by which they might return it for thirty-four thousand francs if they found the other.

Loisel had eighteen thousand francs which his father had left him. He borrowed the rest.

He borrowed it by asking for a thousand francs of one friend, five hundred of another, one hundred of this one, and sixty of that one. He gave notes, made ruinous promises, took money of usurers, and finally succeeded in getting together the thirty-six thousand francs. Worn out by anxiety for the future, he bought the new necklace.

When Mrs. Loisel took the diamonds to Mrs. Forestier, the latter said to her in a cold tone :

“ You should have returned them to me sooner, for I might have needed them.”

She did not open the jewel-box as her friend feared she would. If she should see that the necklace was not her own, what would she think? What would she say? Would she take her for a robber?

Madame Loisel now learned the hard life of the very poor. She did her part, however, completely, heroically. It was necessary to pay this frightful debt. She would pay it. They sent away the maid; they moved to a cheaper apartment.

She learned the heavy cares of a household, the disagreeable work of a kitchen. She washed the dishes, using her rosy nails upon the greasy pots and the bottoms of the stew pans. She washed the soiled linen and hung it on the line to dry; she took the garbage down to the street each morning and brought up the water, stopping at each landing to rest. And, clothed like other poor women, she went to the grocer’s and the butcher’s with her basket on her arm, shopping, haggling, defending her miserable money to the last coin.

Every month it was necessary to renew some notes, and to pay others.

The husband worked evenings, putting the books of some merchants in order, and nights he often did copying at five sous a page.

And this life lasted ten years.

At the end of that time, they had paid all, all, with the interest of the usurer.

Madame Loisel seemed old now. She had become a

strong, hard woman. Her hair was badly dressed, her skirts awry, her hands red ; but sometimes, when her husband was at the office, she would seat herself before the window and think of that evening party of former times, of that ball where she was so beautiful and so flattered.

How would it have been if she had not lost that necklace ? Who knows ? Who knows ? How strange is life, and how full of changes ! How small a thing will ruin or save one !

One Sunday, as she was taking a walk in the park to forget the cares of the week, she suddenly saw a woman walking with a child. It was Madame Forestier, still young, still pretty, still attractive. Madame Loisel was deeply moved. Should she speak to her ? Yes, certainly. And now that she had paid, she would tell her all. Why not ?

She approached her. "Good morning, Jeanne."

Her friend did not recognize her and was astonished to be so familiarly addressed by this common woman. She stammered :

"But, Madame — I do not know — You must be mistaken — "

"No, I am Matilda Loisel."

Her friend uttered a cry of astonishment : "Oh ! my poor Matilda ! How you have changed — "

"Yes, I have had some hard days since I saw you ; and some miserable ones — and all because of you — "

"Because of me ? How is that ?"

"You recall the diamond necklace that you loaned me to wear to the minister's ball ?"

"Yes, very well."

"Well, I lost it."

"How is that, since you returned it to me ?"

"I returned another to you exactly like it. And it has

taken us ten years to pay for it. You can understand that it was not easy for us who have nothing. But it is all paid for now, and I am content."

Madame Forestier stopped short. She said :

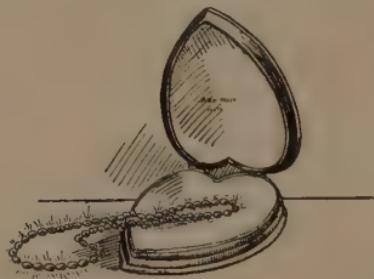
"You say that you bought a diamond necklace to replace mine?"

"Yes. You did not notice it, then? They were just alike."

And she smiled with a proud and simple joy. Madam Forestier was touched and took both her hands as she replied :

"Oh! my poor Matilda! Mine were false. They were not worth over five hundred francs!"

— Translated and abridged from *La Parure*, by Guy de Maupassant.



60. SAVING A LIFE

Suppose you saw a person fall into the water, saw him sink below the surface, and when he came to the top you pulled him out on the shore. He was limp and unconscious. What would you have done then? Very likely this experience may come to one of you. It would be a fine thing to pull a person out of the water, but it would be too bad if he died after all because you did not know how to care for him. Prompt and proper care is very important for a person nearly drowned.

This selection tells how to revive a person rescued from the water. Read it very carefully so that you may know just what to do in such an emergency. In order that you may have practice, form two groups of five or six pupils, let each choose a patient, then have each group demonstrate in the classroom just what should be done. The teacher and the rest of the class should criticize and be sure that the printed directions are properly carried out.

THE Schaefer Method is the simplest and best method of reviving a person apparently drowned. Place the patient face down on a flat surface. Drain as much water as possible from the mouth by lifting the body up at the waist. Then place a folded coat or blanket under the patient at about the pit of the stomach. In arranging the patient turn his face to one side. If the face is turned to the right, bring the left arm of the patient above the head and the right hand to a resting place beside the face. Kneel astride the knees of the patient and place your hands on each side of the back in the region of the lower ribs. Your hands should be separated with the tips of the thumbs about four inches apart. You are now ready to begin. It must be remembered that the average rate of breathing is about six-

teen times per minute, and the procedure you are to follow should be at about the same rate.

Lean forward on your hands so that all your weight may be brought to bear on the ribs of the patient. This forces the air out of the chest. Raise your body and release the pressure on the ribs. The elastic chest wall will fill out and allow air to come in. This pressure and release at the rate of about sixteen times a minute will cause the air to pass in and out of the lungs and so will provide the necessary oxygen to revive the patient.

Send for a doctor, but don't wait until he arrives, as delay may be fatal. Never bother with any mechanical means for artificial respiration. Such machines are far less effective than hand operation. Begin work as soon as the victim is taken from the water. Don't give up efforts in less than an hour. The operator should not stop when the patient takes irregular gasping breaths. He should continue until breathing becomes quite regular. The patient needs plenty of air. Keep spectators away. When the patient can swallow, stimulants may be given — a teaspoonful of aromatic spirits of ammonia in a half glass of hot water. Hot coffee may be given in small quantities. Then the patient, stripped of wet clothes, should be put to bed, kept warm and quiet.

Artificial respiration is one of the most useful things you can learn. You should practice it until you know exactly how to do it.

— By Jesse Feiring Williams.

61. WE NEED YOUR HELP

Not long ago this selection was used in a circular asking people to give money to help the poor. Read the selections in order, and try to answer these questions:

1. Are there poor families now in New York who need help just as there were in London long ago?
2. How could you help Milly and her little family?
3. What does the title to the third part of the lesson mean?
4. If you had money to give, would this circular persuade you to do so?
5. What is the meaning of the words below the picture on page 268?

LONDON — 1853

DICKENS, writing in 1853, describes in "*Bleak House*" Neckett's home and children:

In a poor room, with a sloping ceiling, and containing very little furniture, was a mite of a boy, some five or six years old, nursing and hushing a heavy child of eighteen months. There was no fire, though the weather was cold; both children were wrapped in some poor shawls and tippets as a substitute. Their clothing was not so warm, however, but that their noses looked red and pinched, and their small figures shrunken, as the boy walked up and down, nursing and hushing the child with its head on his shoulder.

"Who has locked you up alone?" we naturally asked.

"Charley," said the boy, standing still and gazing at us.

"Is Charley your brother?"

"No, she is my sister, Charlotte. Father called her Charley."

“Where is Charley now?”

“Out a-washing,” said the boy, beginning to walk up and down again.

We were looking at one another, and at these two children, when there came into the room a very little girl, childish in figure but shrewd and older looking in the face — pretty-faced too — wearing a womanly sort of bonnet, much too large for her, and drying her bare arms on a womanly sort of apron. Her fingers were white and wrinkled with washing, and the soapsuds were still smoking which she wiped off her arms. But for this, she might have been a child, playing at washing, and imitating a poor working woman with a quick observation of the truth.

“Oh, here’s Charley!” said the boy.

The child he was nursing stretched forth its arms and cried out to be taken by Charley. The little girl took it in a womanly sort of manner belonging to the apron and bonnet, and stood looking at us over the burden that clung to her most affectionately.

“Charley, Charley!” said my guardian. “How old are you?”

“Over thirteen, sir,” replied the child.

“And do you live here alone with these babies, Charley?”

“Yes, sir,” returned the child, looking up into his face with perfect confidence, “since father died. . . . Mother died just after Emma was born,” said the child, glancing at the face upon her bosom. “Then father said I was to be as good a mother to her as I could. And so I tried. And so I worked at home, and did cleaning and nursing and washing, for a long time before I began to go out. And that’s how I know how; don’t you see, sir?”

“And do you often go out?”

"As often as I can," said Charley, opening her eyes, and smiling, "because of earning sixpences and shillings!"

"And do you always lock the babies up when you go out?"

"To keep 'em safe, sir, don't you see?" said Charley; "and perhaps I can run in sometimes, and they can play, you know, and Tom ain't afraid of being locked up, are you, Tom?"

"No-o!" said Tom, stoutly.

"When it comes on dark, the lamps are lighted down in the court, and they show up here quite bright — almost quite bright. Don't they, Tom?"

"Yes, Charley," said Tom, "almost quite bright."

"Then he's as good as gold," said the little creature. . . . "And when Emma's tired, he puts her to bed. And when he's tired, he goes to bed himself. And when I come home and light the candle, and has a bit of supper, he sits up again and has it with me. Don't you, Tom?"

"O yes, Charley!" said Tom, "that I do!" And either in this glimpse of the great pleasure of his life, or in gratitude and love for Charley, who was all in all to him, he laid his face among the scanty folds of her frock, and passed from laughing into crying.

The little orphan girl had spoken of their father and their mother, as if all that sorrow were subdued by the necessity of taking courage, and by her childish importance in being able to work, and by her bustling, busy way. But now, when Tom cried, although she sat quite tranquil, looking quietly at us, and did not by any movement disturb a hair of the head of either of her little charges, I saw two silent tears fall down her face.

NEW YORK — 1921

From the Charity Organization Society record of an actual case, describing the S—— family and their home:

The two rooms were in the basement, and they were dark, damp and cold, the window panes broken everything upset, and not a whole piece of furniture in sight. The two little boys and the baby were home. John, seven years old, was chopping small pieces of wood to bits and putting them on the fire. The kitchen indeed looked more like a wood shed than a place for people to live in.

John said, "Milly's at school, but she cooks the lunch when she gets home at noon. Sometimes it's bread and tea and sometimes it's oatmeal; and mother is out working, but she cooks the dinner after she gets home. I don't know where father is." The father was in the penitentiary.

Neither John, nor Frederick who was three, had shoes or stockings on, though the floor was of stone; and their clothes were tattered and very meager. The baby, Harold, two years old, had only a little shirt on and Frederick had on a torn sweater and a very ragged pair of overalls. These three little children were huddled around the stove, simply leaning on it. There was no door between the two rooms and the small kitchen fire seemed to be trying to heat both.

All three children were extremely dirty and ragged. But the babies never cried, for John was a regular little father to them, tending the fire and being very loving to them. Indeed all the children were extremely fond of each other and were very affectionate to each other. It was mid-afternoon, and already these basement rooms were getting dark. There was something the matter with the gas. It did not burn over half an inch high and

every few minutes it would flicker out. Every time it went out, John would light a big piece of paper from the fire in the stove, stand up on a chair and light the gas. Big pieces of flaming paper would fall off from this torch and fly around the room.

It seemed the most wretched place in the world for these little children, but they were very cunning and seemed quite happy. John said, "At night we all sleep in one bed and cuddle up together with coats and clothing over us." He put the babies on the bed and jumped up and down on the bed singing to them and making the bed move in a sort of rocking motion.

I got some coal and replenished the fire, and the children laughed and played. In the hall, I was met by Milly returning from school. She looked very sweet and neat. I commented on her looks and she said, "Oh, I have just come home from school," suggesting that she usually dressed that way in school. She removed her clean clothes as soon as she got into the house. She said that John and the two other children and a little cousin had had a merry time in the apartment that morning. Milly immediately dressed the baby, and made a desperate effort to straighten up the house.

Then breaking into a childish sob, she said that the children had gotten into the cupboard and eaten some bread, her mother had left for her. Little Frederick, sitting quietly on the bed, looked very serious: and I asked him gently if he had eaten the bread; and in a mysterious little whisper he said:

"No, oh, no."

Then I asked him who had gotten it, and he said, "Nobody," in the same little whisper.

Milly evidently did not know how to meet the situation,

but Frederick broke involuntarily into one of his chuckling little laughs in which Milly and I had to join. Somewhere in his pudgy little body there seemed to be a well of humor which bubbled up and overflowed.

Little John was the man of the family, but Milly, ten years old, mothered them all.



DO WE BUILD LIVES AS WELL AS WE BUILD HOUSES?

BACK TO SELF-RESPECT AND SELF-SUPPORT

For "Charley" and her little brother and sister in London in 1853, homes were found through the chance kind-heartedness of strangers.

To-day we do not leave these things to chance. Men and women have organized for the intelligent assistance of our city's destitute.

So Mrs. S—— and Milly and the three little children did not have to wait for some one to happen on them; they appealed directly to the Charity Organization Society. It first gave financial relief, then moved them into healthful rooms, induced the mother to go to the clinic and take the children, got the mother's sister and the minister interested, educated the mother in the use of a budget, visited the father at the prison, kept him in touch with his family, and found employment for him after his release. Now the family is self-supporting. They are visited from time to time and feel that a little friendly encouragement is all they need.

This is only one of the many cases which go to make up the day's work of the Charity Organization Society. Every year nearly 20,000 people appeal to it for assistance. It has district committees covering all of Manhattan Island. Destitute families come to it with problems which underlie most of the suffering, misery, and crime in the great city — loss of the breadwinner, illness, and kindred hardships, all made more urgent and acute this year than ever before by the high cost of living.

Not all these families require financial assistance, but all do require trained supervision and guidance to assist them back to self-respect and self-support.¹

¹ Reprinted by permission.

62. THE STORY OF THE COTTON GIN

This selection is full of interesting information about something with which you may be familiar. Read it rapidly, but be sure to get the important facts.

Wait until your teacher gives you further directions before you begin to read.

THE story goes that several Georgia planters were once dining with Mrs. Greene, the widow of General Nathanael Greene. During their conversation the difficulty of removing the seed from the cotton fiber was mentioned, and the suggestion was made that this might be done by machinery. At this Mrs. Greene mentioned the skill and ingenuity of a Mr. Whitney, a young man from Massachusetts who was making his home on her plantation, and advised her guests that he should be given the problem to solve. This advice was followed. The planters had a talk with the young man, and explained to him the difficulty which they found in separating the seed from the lint.

At that time one pound of lint cotton was all that a negro woman could separate from the seed in a day; and the more cotton the planters raised, the deeper they got in debt. The close of the Revolutionary War had found them in a state of the utmost poverty, so that they had been compelled to mortgage their lands in order to get money on which to begin business. Cotton was the only product of the farm for which there was any constant de-

mand; but, owing to the labor of separating the lint from the seed, it could not be raised at a profit.

When the planters went to Whitney with their problem, he was entirely ignorant of the whole matter. He knew nothing of cotton or of cotton planting; but he at once set himself to work. He made a careful study of the cotton plant. He shut himself in a room with some uncleansed cotton, and worked at his task during a whole winter. He made his own tools at the plantation blacksmith shop; and all day long, and sometimes far into the night, he could be heard hammering and sawing away.

In 1793 he called together the planters who had asked him to solve the problem, and showed them the machine, which he called a cotton gin. When they saw it work, their surprise and delight knew no bounds. They knew at once that the problem had been solved by the young genius from Massachusetts. Little calculation was needed to show them that the cotton gin could clean as much cotton in a day as could be cleaned on a plantation during a whole winter. What before had been the work of a hundred hands for several months could now be completed in a few days.

But it seems to be the fate of the majority of those who make wonderful inventions never to enjoy the full benefits of the work of their genius. Eli Whitney was not an exception to the general rule. While he was working on his cotton gin, rumors of it went abroad; and by the time it was completed, public expectation was on tiptoe. When the machine was finished, it was shown to only a few people; but the fact, of such immense importance to the people of the State, was soon known throughout the State, and the planters impatiently waited for the day when they would be able to put it in use.

One night the building in which Whitney's cotton gin was concealed was broken into, and the machine carried off. It was a bold robbery, and a very successful one. The inventor made haste to build another gin; but before he could get his model completed, and obtain a patent right to the invention, the machine had been manufactured at various points in the South by other parties, and was in operation on several plantations. Whitney formed a partnership with a gentleman who had some capital, and went to Connecticut to manufacture his gin; but he was compelled to spend all the money he could make, fighting lawsuits. His patent had been infringed, and those who sought to rob him of the fruits of his labor took a bold stand. The result of all this was that the inventor never received any just reward for a machine that revolutionized the commerce of the country, and added enormously to the power and progress of the Republic.

— From *Stories of Georgia*, by Joel Chandler Harris.

